

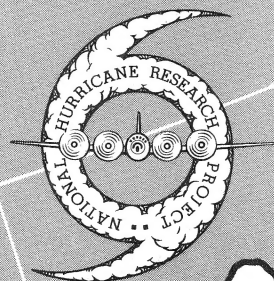
NATIONAL HURRICANE RESEARCH PROJECT

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REPORT NO. 3

Rainfall Associated With Hurricanes

(Prepared under P. L. 71, 84th Congress, 1st Session)



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NATIONAL HURRICANE RESEARCH PROJECT

REPORT NO. 3

RAINFALL ASSOCIATED WITH HURRICANES (And Other Tropical Disturbances)

by

R. W. Schoner and S. Molansky
Hydrometeorological Section
Hydrologic Services Division

Prepared Under P. L. 71, 84th Congress, 1st Session
As Part of Subproject 3

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RAINFALL ASSOCIATED WITH HURRICANES

I. INTRODUCTION

Authorization. Public Law 71 (84th Congress, first session) authorizes and directs an examination and survey of the eastern and southern seaboard of the United States with respect to hurricanes, with particular reference to areas where severe damage has occurred. It further states that such survey shall include, among other things, the securing of data on the behavior of hurricanes and determination of methods for improving warning services and of possible means for preventing loss of human life and property damage. A memorandum dated 25 November 1955 prepared in the Office of the Chief of Engineers, Civil Works Division, and entitled "Comprehensive Investigations of Hurricanes and Associated Problems" indicates on page 6 that Subproject 3 of the investigations by the Weather Bureau will be a correlation of hurricane characteristics with excessive rainfall and development of improved quantitative rainfall forecasting methods for use in connection with general hurricane forecasting activities. This comprehensive survey of the rainfall actually produced by hurricanes and weaker tropical disturbances in the United States is a logical first step in such studies.

Scope of the project. In order to complete the primary objectives of giving the total picture of hurricane rainfall and presenting the material in time to be of use to forecasters and other interested parties by the beginning of the 1956 hurricane season, several decisions were made at the beginning of the study. 1) To concentrate on giving a general picture of the rainfall in each hurricane rather than a meticulous analysis of small-area variations. However, in cases where rather detailed analyses had already been made in the Corps of Engineers' Storm Study Program, more complete details for these hurricanes are incorporated in the maps presented herewith. 2) The meteorological summary of each storm was done in a minimum amount of time without reanalyzing synoptic maps. The principal materials available were summaries prepared in connection with the Corps of Engineers' Storm Study Program, summaries presented in the "Monthly Weather Review" at the end of each hurricane season, and summaries found in the "Climatological Data" by states. While the summaries serve to give a true general picture of the situation in connection with each storm, they will no doubt leave the critical, technical meteorologist unsatisfied. It is suggested that the rainfall situation might be studied together with the Historical Weather Map Series or "Hurricane Tracks", the forthcoming publication by the Office of Climatology of the U. S. Weather Bureau. Further reports under this project will go more deeply into the synoptic features.

Sources of data. Part II's from the Corps of Engineers' Storm Studies were used insofar as they have been prepared. For the maximum 24 hours in each storm, amounts were obtained by totaling 6-hour amounts from form S-10 of the Part II. These storms are readily identified because depth-area-duration data from form S-12 are included with the summaries. For other storms, data were obtained from "Climatological Data" or "Hydrologic Bulletins" of the Weather Bureau. In cases where the rainfall amount was

spread over a considerable period of time, the question arose of the timing of rainfall for observations reported in the early morning, late afternoon, or at midnight. In most cases the matter was resolved by taking the observations most applicable to the case in question. Although this resulted in the loss of a certain amount of information, to have included it would have required an enormous increase in cost. In cases where the rainfall was heavy for a short period of time, a total-storm isohyetal map was found to give a smooth isohyetal pattern with a high degree of accuracy.

Orientation and remarks. The storm studies are grouped according to regions: (1) North Atlantic (north of 40° N, including New Jersey and Pennsylvania), (2) South Atlantic (south of 40° N, including Florida), and (3) Gulf Coast (excluding Florida). Where a storm embraces more than one of the delineated regions, it is cross referenced in the appropriate regions. The storms have been grouped further into three subsections: (a) major storms which have been studied in detail, (b) storms which have not been studied in detail but have 24-hour rainfall amounts that exceed 5 inches, and (c) storms which have less than 5 inches of rainfall in 24 hours, but classed as storms of tropical origin or hurricanes. The storms in each region appear in order of decreasing rainfall amounts.

Many of the heaviest rainfalls have been from storms of less than hurricane intensity. In storms that were once hurricanes, the heaviest rain frequently occurred after the storm weakened to the point where the winds no longer met the criterion of hurricane force. Pre-hurricane rainfall situations, where warm, moist air coming around the eastern or northern side of hurricanes impinges on the cold air along a far-distant pre-existing front, have, in cases such as the Ewan, N. J., storm of September 1940, produced a major storm. The storm of September 1938, where the greatest part of the rainfall occurred a day or two before the hurricane itself entered the coast, is another example of important pre-hurricane rainfall. The location and amount of the center of maximum rainfall are given for storms that fall into subsection categories (a) and (b). For storms that have been studied in detail the actual time of rainfall beginning and ending (EST, unless otherwise noted) is included. For those storms that have not been studied in detail, only the amounts covering the total period of the storm have been included, since observations are not detailed enough to give an accurate time of beginning and ending of the rainfall. The isohyetal maps are labeled in inches of rainfall.

Acknowledgments. The project, under the direction of Dr. Charles S. Gilman, Chief of Section, was carried out by Robert W. Schoner and Sydney Molansky. The computation of data and plotting of isohyetal maps was by the Meteorological-Aid Pool of the Section under the supervision of A. E. Brown and, later, Edward E. Edstrom. The figures were drafted by Nemesio O. Calub under the supervision of Robert E. Davidson. The manuscript was edited by Lillian K. Rubin and typed by Edna L. Grooms, Cora G. Ludwig, Billie A. Neely, and Shirley Salyer.

II. STORMS IN THE GULF OF MEXICO COASTAL REGION

STORM OF SEPTEMBER 8-10, 1921

Meteorological Summary

The excessive rainfall that occurred over south-central Texas during this period may be attributed to an abundant moisture supply in an area of exceptionally strong convergence. These conditions were caused by a combination of meteorological events.

The added moisture was fed into the area as the westward extension of the Bermuda High extended over the Gulf of Mexico, thus favoring the movement of a tropical disturbance near Tampico, Mexico, into the interior of Mexico on September 7. The anticyclonic flow prevailing over the Gulf gradually shifted further westward as the weak tropical disturbance moved northward. By September 9 the strong anticyclonic flow was influenced by the circulation of the weak tropical disturbance to the extent of producing strong cross-isobaric flow over the area of maximum rainfall. Another feature that aided in shaping the isobars to maximum effectiveness was another tropical disturbance centered in the vicinity of the Barbados Island. The combination of these three meteorological conditions contributed to producing a record rainfall over south-central Texas. Further treatment of this storm can be found in the Monthly Weather Review, July 1953, pages 195-203.

Rainfall Data*

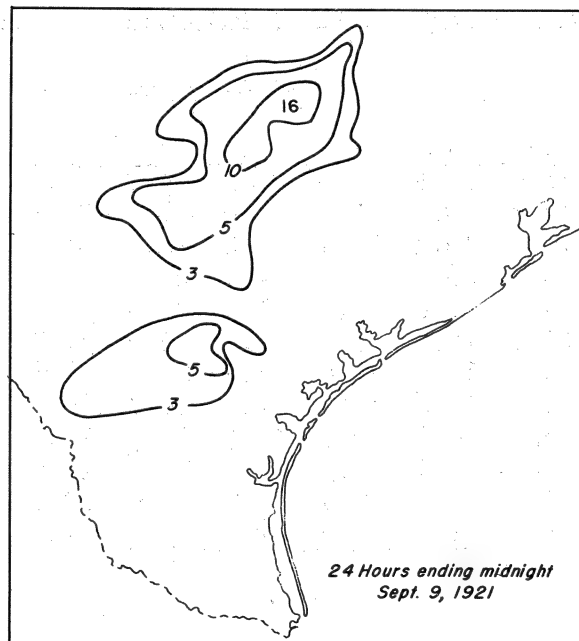
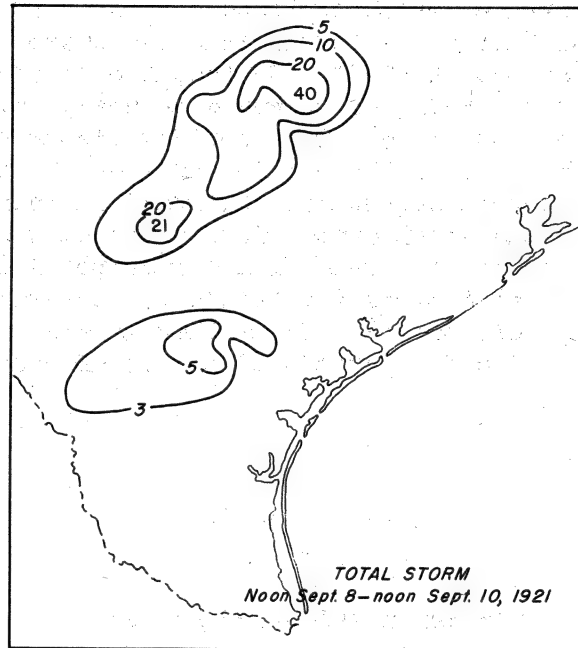
Maximum Total-Storm Amount

Thrall, Tex. (2 miles north): 39.7 in. from 4 a.m. CST Sept. 9 to 1 p.m. CST Sept 10

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours						
	6	12	18	24	30	36	48
Max. Station	23.4	31.8	36.4	38.2	39.2	39.7	39.7
10	22.4	29.8	35.0	36.5	37.2	37.6	37.6
100	19.6	26.2	30.7	31.9	32.6	32.9	32.9
200	17.9	24.3	28.7	29.7	30.4	30.7	30.8
500	15.4	21.4	25.6	26.6	27.3	27.6	27.7
1,000	13.4	18.8	22.9	24.0	24.6	24.9	25.1
2,000	11.2	15.7	19.5	20.6	21.2	21.5	21.6
5,000	8.1	11.1	14.1	15.0	15.9	16.2	16.3
10,000	5.6	7.7	9.7	10.7	11.8	12.1	12.2
12,500	4.7	6.7	8.4	9.4	10.3	10.7	10.9

*Storm Rainfall in the U.S. GM 4-12, C. of E., U.S. Army



STORM OF AUGUST 6-9, 1940

Meteorological Summary

The tropical disturbance which produced the rains of August 6-9, 1940, passed over the central Florida Peninsula into the eastern Gulf on August 3 and advanced westward across the Gulf. On August 6 it was centered just off the Louisiana coast and rains of moderate-to-heavy intensity spread into the southeastern part of the State. The tropical disturbance reached the coast of Cameron Parish, La., on the morning of the 7th, then passed west of Port Arthur, Tex., and turned northward. Rainfall increased in intensity about 100 miles east of the storm center during the slow recurvature on the 8th. The disturbance continued northward and dissipated over southwestern Arkansas on August 10, with diminishing rainfall. Several rainfall records were established during this period. The Miller Island, La., rainfall established record intensities for periods of one to six days for the eastern United States.

Rainfall Data*

Maximum Total-Storm Amount

Miller Island, La.: 37.5 in. from 2 a.m. CST, August 7 to 8 a.m. CST, August 9

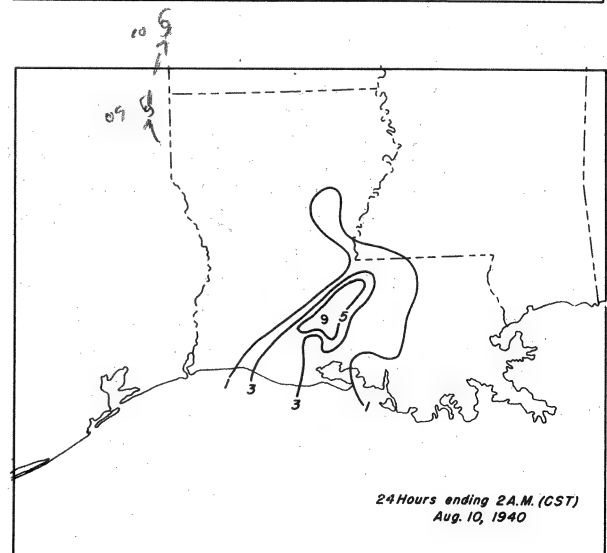
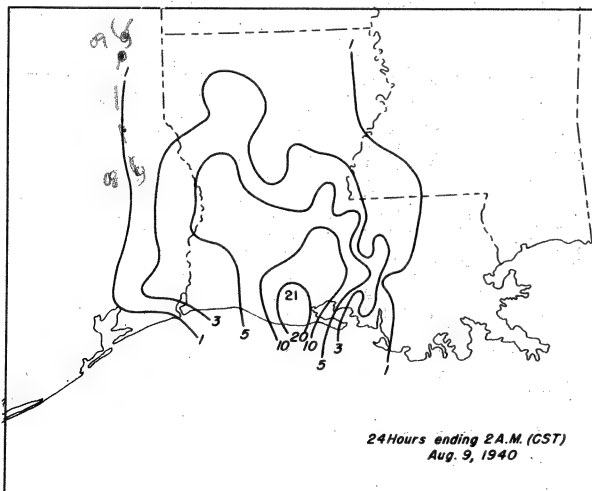
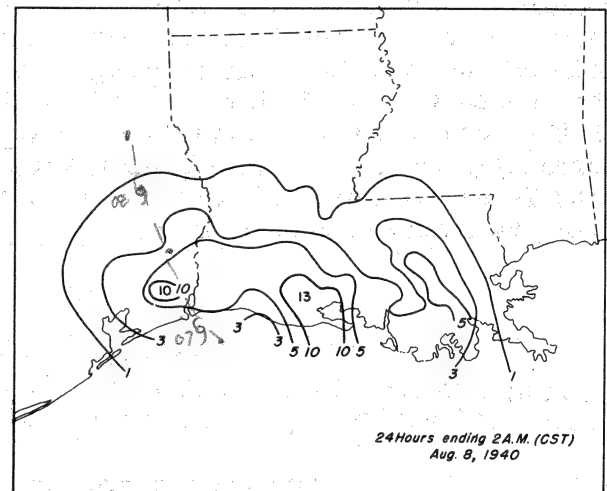
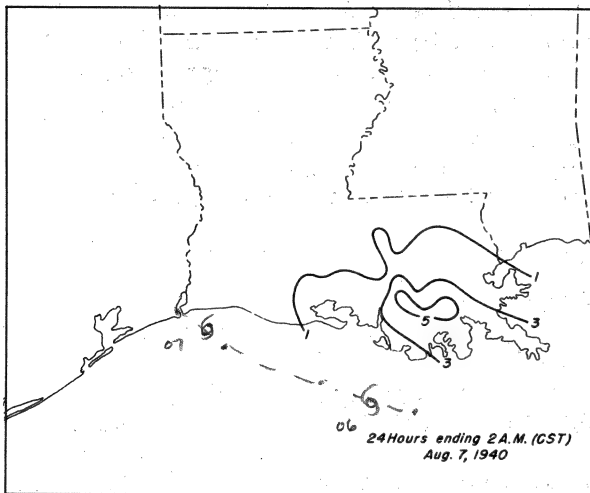
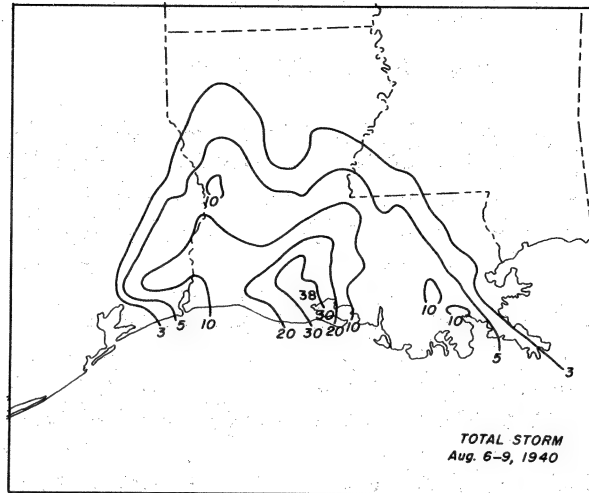
Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	84
Max. Station	8.8	16.8	19.6	23.8	26.3	29.7	35.0	37.5	37.5	37.5
10	8.5	15.8	19.3	22.1	25.6	28.5	34.8	37.3	37.3	37.3
20	8.4	15.5	19.1	21.7	25.2	28.1	34.1	36.8	36.8	36.8
100	8.0	14.5	18.4	20.7	24.1	27.1	32.6	35.2	35.2	35.2
200	7.8	13.4	17.8	20.3	23.5	26.5	31.9	34.5	34.5	34.5
500	6.9	12.0	16.2	19.4	22.7	25.6	30.3	33.5	33.6	33.6
1,000	6.0	10.9	14.5	18.4	21.7	24.6	28.8	31.9	32.2	32.2
2,000	5.0	8.9	12.6	16.7	19.9	22.7	26.3	29.2	29.5	29.5
5,000	3.7	6.4	9.1	12.3	14.9	17.1	20.3	22.6	22.9	22.9
10,000	2.6	4.6	6.3	8.5	10.5	12.1	15.0	16.8	17.2	17.2
20,000	1.5	3.0	4.1	5.5	6.6	7.6	10.1	11.7	12.6	12.7
36,200	1.0	2.0	3.0	4.0	4.8	5.6	7.3	8.4	9.0	9.1

*Storm Rainfall in the U. S., IMV 4-24, C. of E., U. S. Army



STORM OF SEPTEMBER 14-18, 1936

Meteorological Summary

Although the weak tropical disturbance that passed inland between Brownsville and Corpus Christi, Tex., on September 13 produced only a small area of light-to-moderate rain, heavy rain occurred after the disturbance passed inland. This was due to factors indirectly attributable to the disturbance.

On the morning of September 14 the dissipating tropical disturbance was centered just northeast of Del Rio, Tex. A high-pressure system dominated the eastern United States, and a trough of low pressure extended from North Dakota southwestward. Flow about the western side of the High was carrying moist tropical air over a long water trajectory across the Gulf. During most of the storm period the curvature over the western Gulf was markedly anticyclonic, while inland over Texas it changed sharply to cyclonic under the influence of the dissipating tropical disturbance. Because of this change in curvature, the moist unstable air was subjected to horizontal convergence and vertical displacement, with resultant heavy rain in the forward half of the weak Low. By morning of the 16th a cold front was approaching the region and the High had moved slightly eastward. Thus, on the afternoon of the 16th and for 24 hours thereafter, these factors combined to cause torrential rains: tropical air moving in an anticyclonic-to-cyclonic path into Texas, invasion of a cold air mass, stagnation of a low-pressure system with its inherent convergence.

Rainfall Data*

Maximum Total-Storm Amount

Broome, Tex.: 30.0 in. from 1 a.m. CST, Sept. 15, to 7 p.m. CST, Sept. 17
Roosevelt(nr.A)Tex.: 30.0 in. from 1 p.m. CST Sept. 14, to 7 p.m. CST Sept. 17

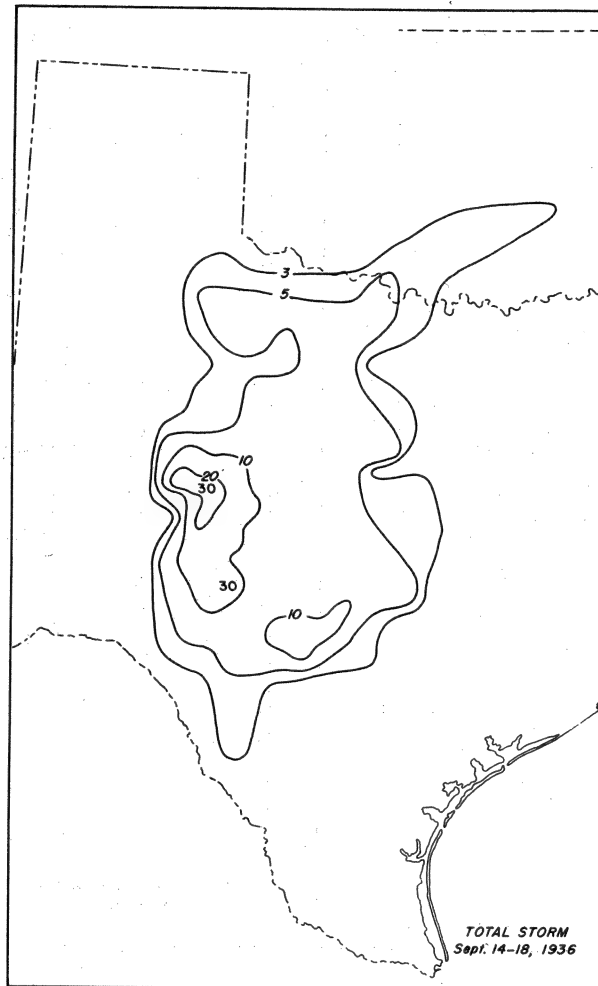
Maximum Average Depth of Rainfall in Inches

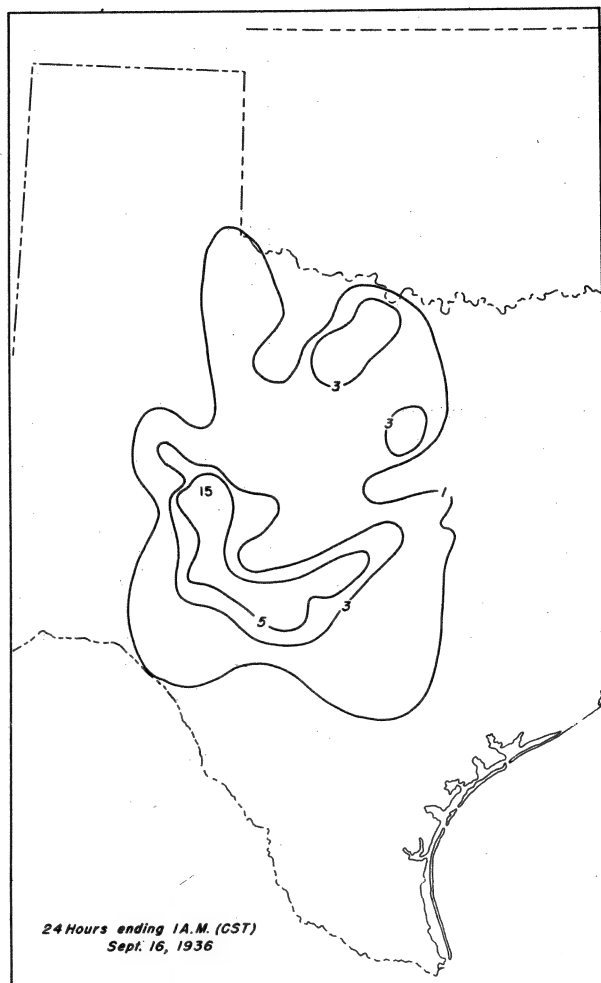
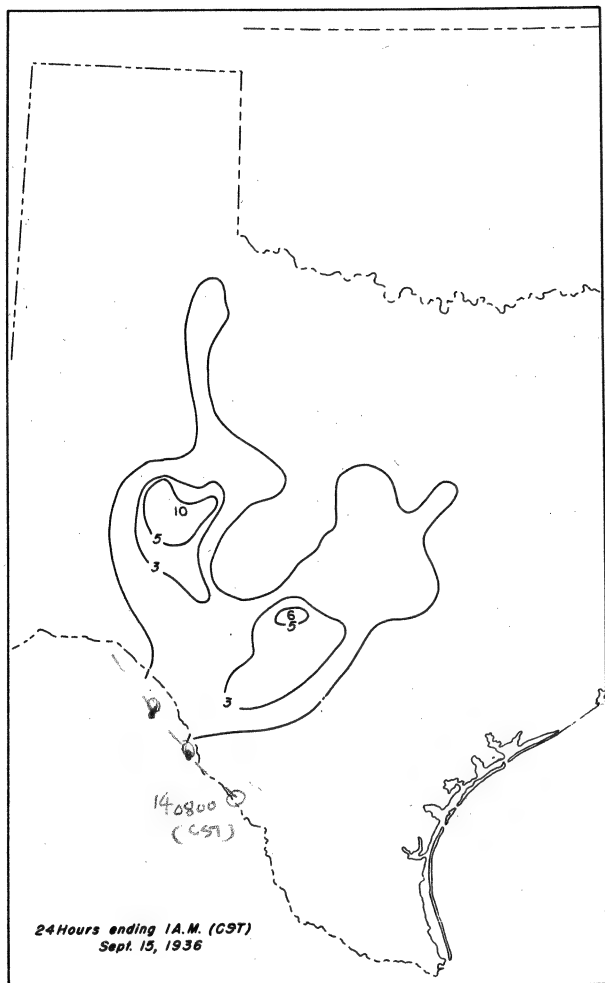
Area in
Sq. Mi.

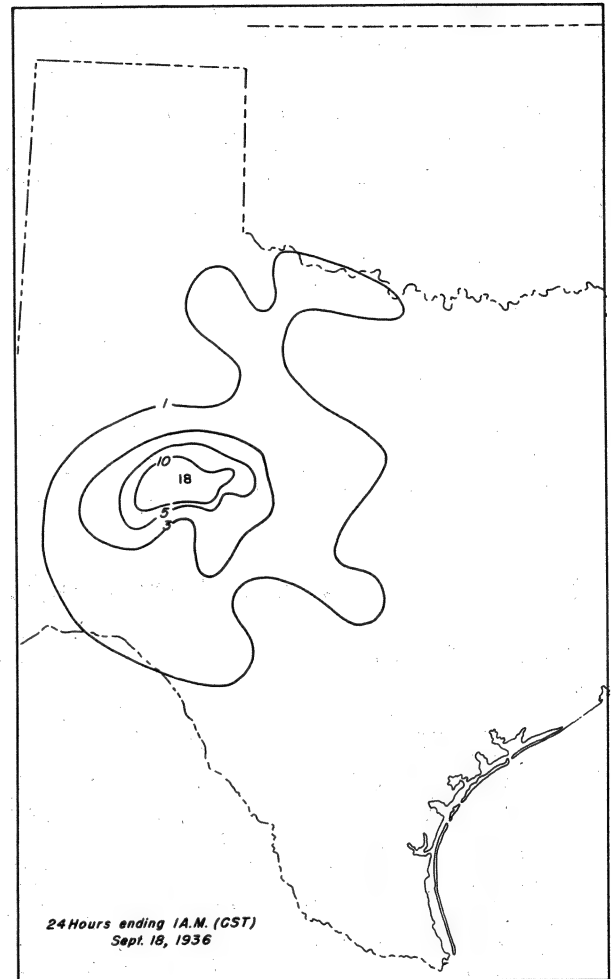
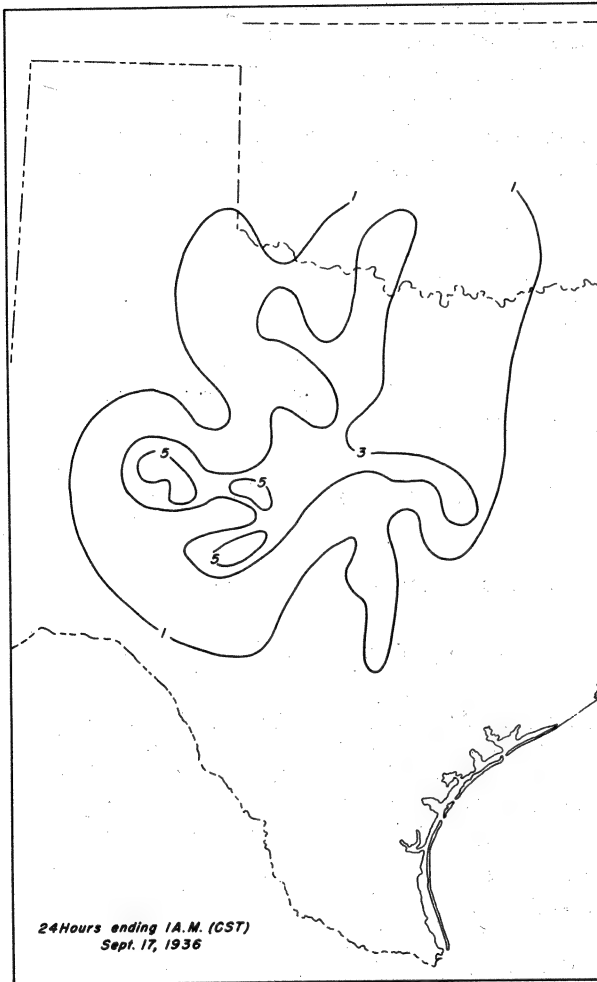
Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96
10	16.0	22.0	24.1	26.0	26.0	26.0	27.6	28.0	30.0	30.0
100	10.4	14.7	17.6	19.7	20.3	21.0	21.6	25.4	28.3	28.3
200	9.5	13.3	16.2	18.5	19.3	20.0	21.4	24.5	27.7	27.7
500	7.7	11.2	14.0	15.8	16.8	17.2	18.2	22.1	25.7	25.7
1,000	6.4	9.5	12.0	13.8	14.5	14.8	15.4	19.9	23.6	23.7
2,000	5.2	7.9	9.9	11.6	11.9	12.3	13.0	17.1	20.9	21.0
5,000	3.7	5.8	7.3	8.7	8.9	9.4	10.2	13.5	16.5	16.7
10,000	2.7	4.3	5.5	6.7	6.9	7.4	8.4	11.1	13.2	13.6
20,000	1.9	3.0	3.9	4.9	5.2	5.8	6.8	8.9	10.4	11.0
50,000	1.1	1.8	2.4	3.1	3.4	4.0	4.7	6.2	7.2	7.9
69,700	0.8	1.4	2.0	2.6	2.9	3.3	3.9	5.2	6.1	6.7

*Storm Rainfall in the U. S., GM 5-7, C. of E., U. S. Army







STORM OF JULY 5-10, 1916

Meteorological Summary

The violent hurricane that entered the Gulf Coast just west of Mobile, Ala., on the evening of July 5 was first observed in the western Caribbean on July 3. Very heavy rains occurred just ahead and to the right of the center as it moved inland. Heavy rains continued as the disturbance decelerated and moved northward. On July 6 it curved sharply to the east and moved into northern Georgia where it dissipated on July 10. The retardation of the low center can be attributed to the blocking action of an extensive high-pressure system centered over the Great Lakes area during most of this period.

Rainfall Data*

Maximum Total-Storm Amount

Bonifay, Fla.: 24.5 in. from noon CST, July 5, to 6 p.m. CST, July 10

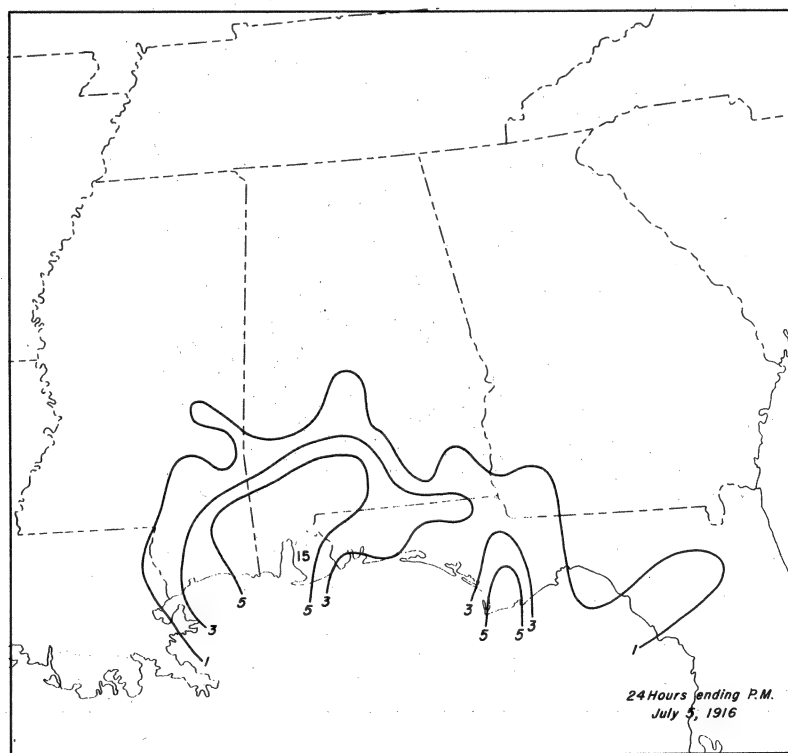
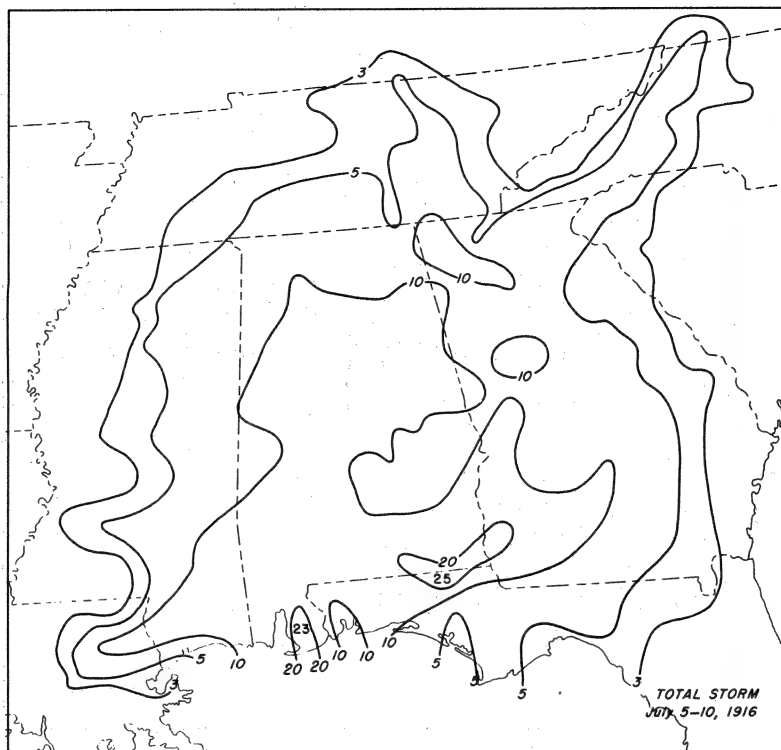
Maximum Average Depth of Rainfall in Inches

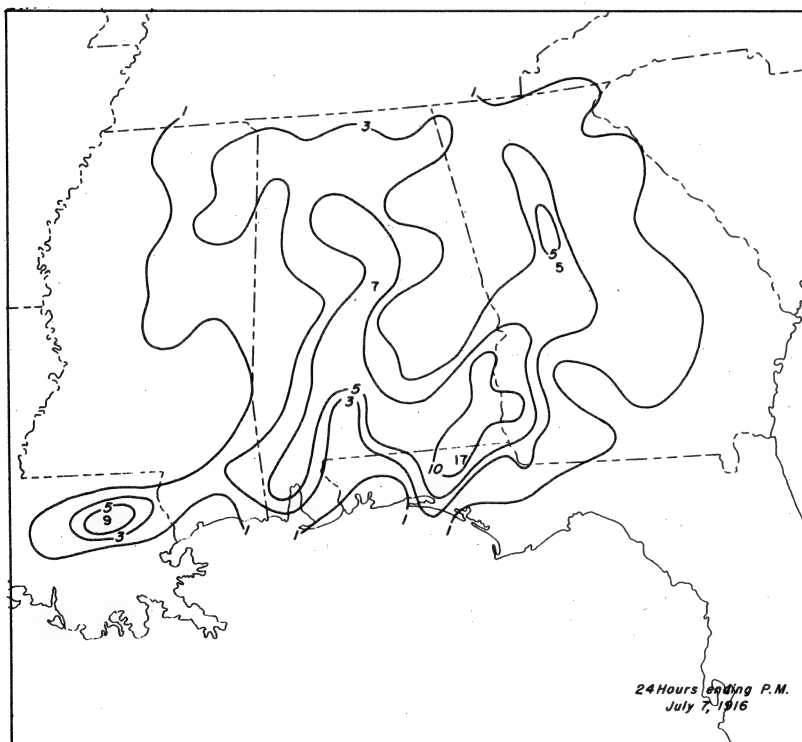
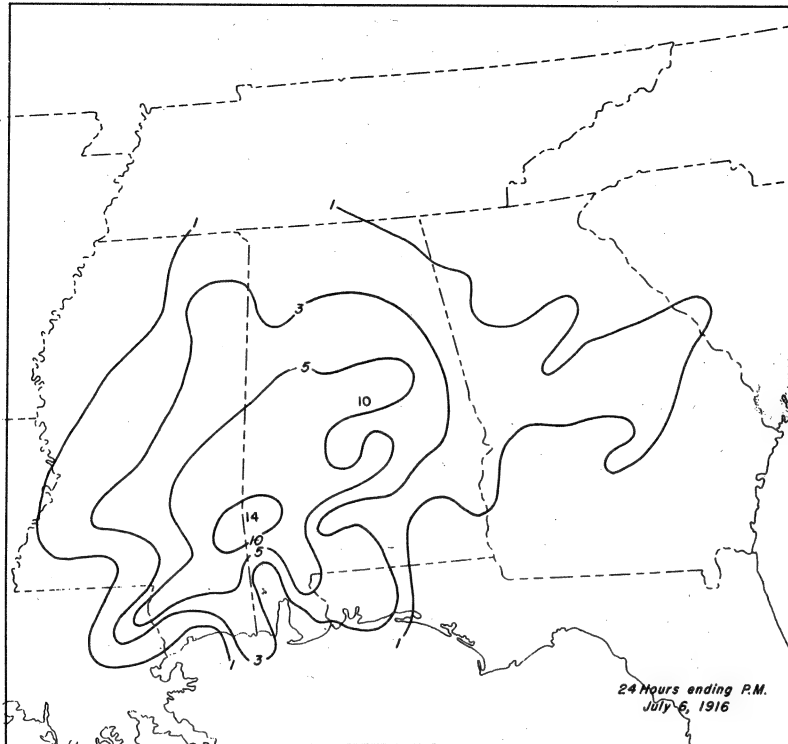
Area in Sq. Mi.

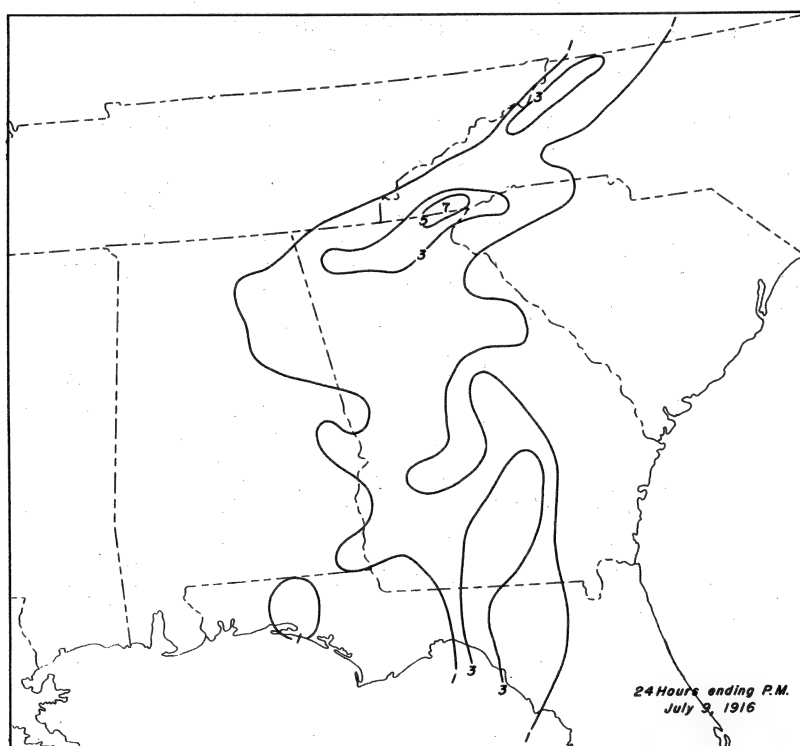
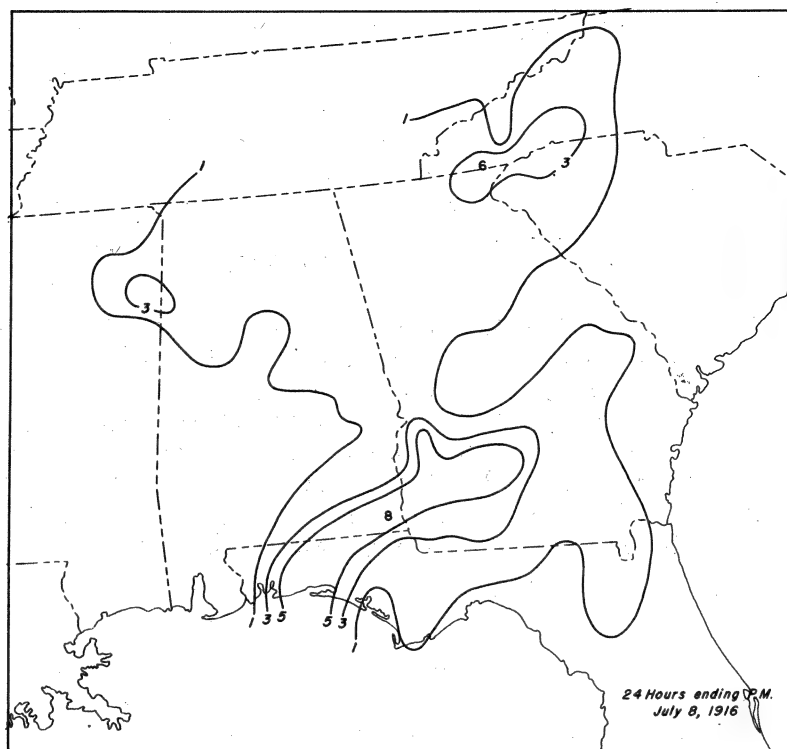
Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	138
10	15.9	17.3	17.8	18.0	19.6	19.6	19.7	20.7	22.2	24.0	24.5
100	12.8	15.6	16.8	17.3	19.0	19.2	19.5	20.1	20.8	22.8	24.0
500	10.5	13.9	15.6	16.6	18.2	18.5	18.8	19.2	19.5	21.6	23.1
1,000	9.6	13.0	14.8	15.9	17.5	18.0	18.3	18.6	18.8	21.0	22.5
2,000	8.4	11.8	13.5	14.6	16.2	16.7	17.1	17.6	17.9	20.2	21.6
5,000	6.8	9.7	11.1	12.0	13.2	13.7	15.0	15.9	16.5	18.9	19.9
10,000	5.2	7.7	8.9	9.8	10.8	11.4	13.2	14.5	15.4	17.5	18.3
20,000	3.3	5.5	6.6	7.4	8.4	9.2	11.3	13.0	14.0	15.8	16.5
50,000	1.9	3.1	4.0	4.7	5.7	6.8	8.7	10.3	11.5	12.9	13.9
100,000	1.3	2.2	2.9	3.6	4.5	5.2	6.6	7.9	8.9	10.2	11.4
189,000	0.8	1.4	1.9	2.4	2.9	3.4	4.4	5.4	6.1	7.4	8.5

*Storm Rainfall in the U. S., GM 1-19, C. of E., U. S. Army







STORM OF JULY 27-29, 1943

Meteorological Summary

The tropical disturbance that entered the Galveston Bay area of Texas about noon on July 27 as a small intense hurricane was first evident over the southeastern Gulf on July 25. In the forty-eight hours after development, the disturbance moved west-northwestward to the upper Texas coast. The hurricane moved inland over the Galveston Bay area about noon of July 27, passed over Houston, Tex., shortly after midnight, and continued on toward Navasota, Tex., with a rapid decrease in intensity. The heaviest rains occurred just prior to and after the disturbance moved inland and dissipated.

Rainfall Data*

Maximum Total-Storm Amount

Devers, Tex.: 23.0 in. from 1 p.m. CST, July 27, to 1 a.m. CST, July 29

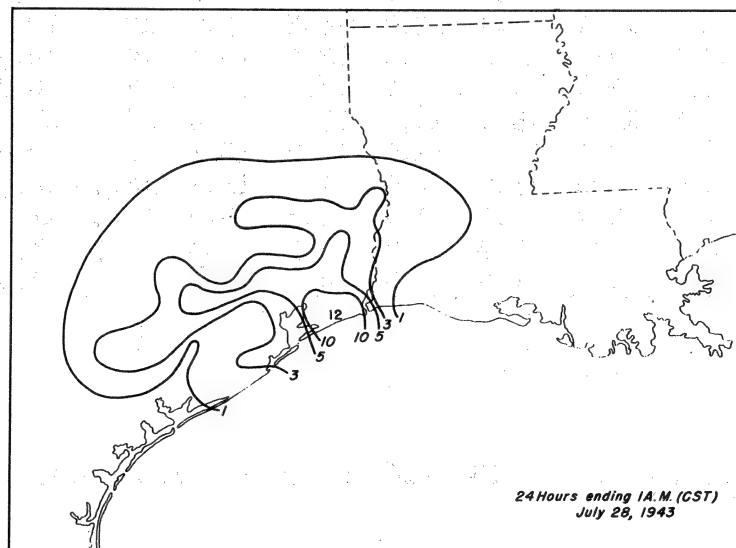
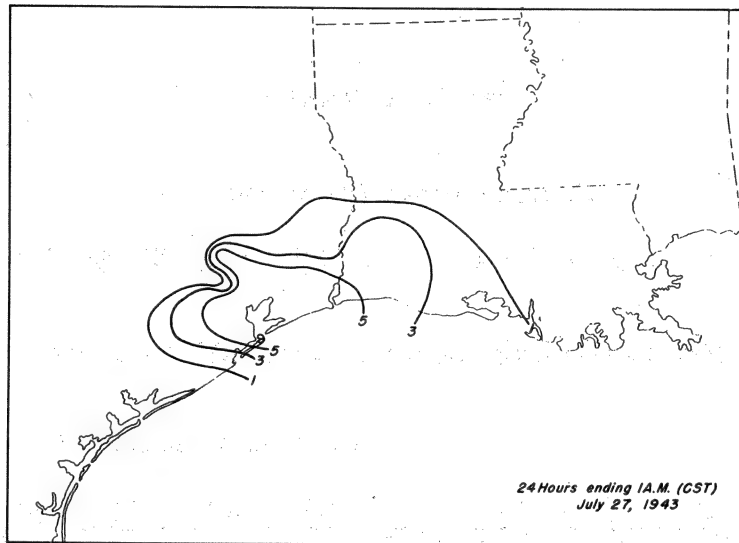
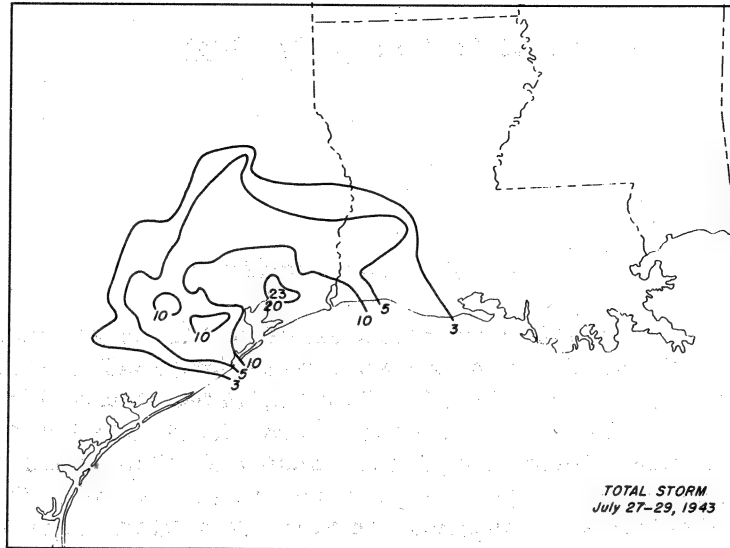
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	42	48	60
Station P - 10	10.7	12.7	14.8	17.7	21.1	22.6	23.0	23.0	23.0
100	8.3	10.6	12.7	15.7	19.3	21.3	22.2	22.2	22.2
200	7.6	10.0	12.1	15.1	18.7	20.8	21.7	21.7	21.7
500	6.6	9.1	11.3	14.3	17.8	20.0	20.8	20.8	20.9
1,000	5.9	8.5	10.7	13.7	16.9	19.1	20.0	20.0	20.1
2,000	5.2	7.9	10.1	13.1	15.8	18.0	18.8	18.8	19.0
5,000	3.9	6.1	7.8	10.4	12.4	13.8	14.7	15.5	15.7
10,000	2.8	4.5	5.9	7.7	9.2	10.5	11.4	12.3	12.5
20,000	1.9	3.0	4.2	5.4	6.5	7.6	8.4	9.2	9.3
33,000	1.2	2.0	3.0	3.7	4.6	5.5	6.3	6.7	6.9

*Storm Rainfall in the U. S., GM 5-21, C. of E., U. S. Army



STORM OF JULY 22-27, 1933

Meteorological Summary

The weak tropical disturbance that entered the Texas coast during the afternoon of July 22 was first noted as a weak tropical disturbance just west of the Yucatan Peninsula on July 19. The disturbance moved northwestward from this position as the Atlantic subtropical High moved eastward. The disturbance moved inland over the Texas coast and then consolidated with a southeastwardly-moving cold front during the night of July 23. The disturbance then stagnated and deepened, producing copious rainfall over eastern Texas and Louisiana from July 22 to July 25.

Rainfall Data*

Maximum Total-Storm Amount

Logansport, La.: 21.3 in. from 7 a.m. CST, July 22, to 7 a.m. CST, July 25

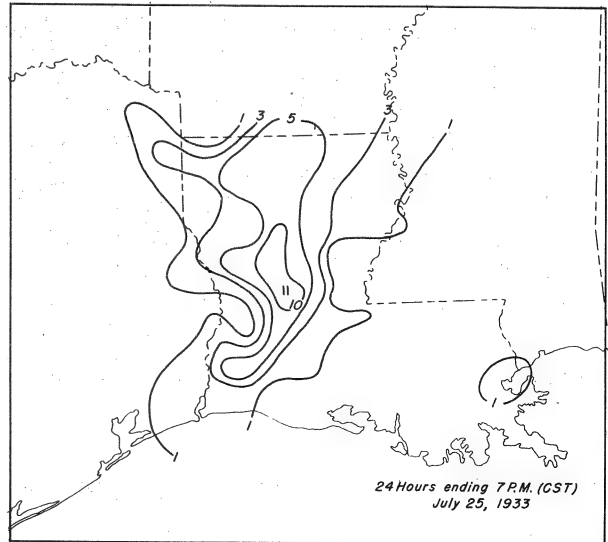
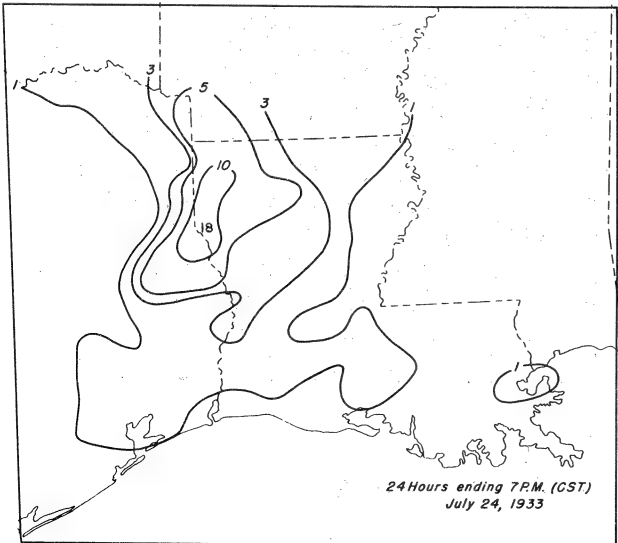
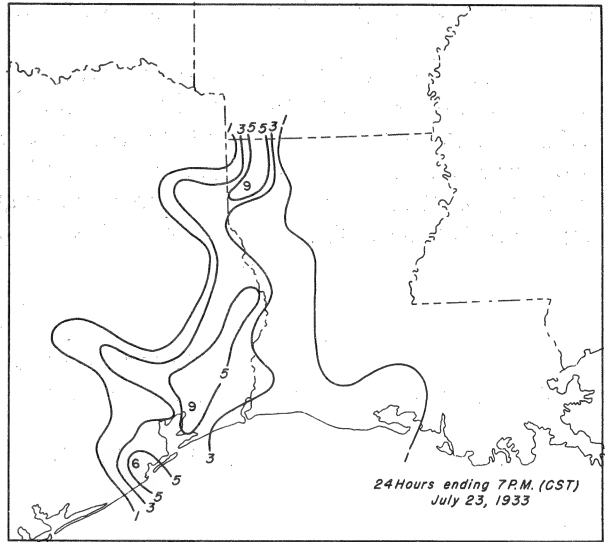
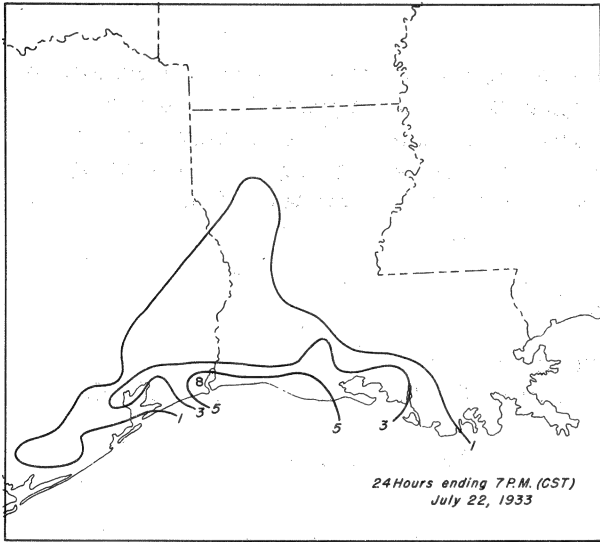
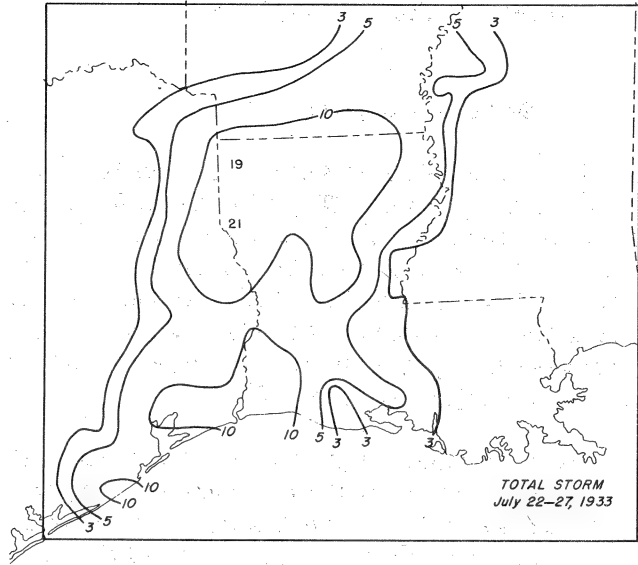
Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	126
10	5.9	11.8	16.8	18.0	18.7	19.9	20.3	20.8	21.3	21.3	21.3
100	5.7	11.4	15.1	17.4	18.1	19.2	19.6	20.2	20.6	20.7	20.7
200	5.6	11.2	14.4	17.1	17.7	18.8	19.2	19.8	20.2	20.3	20.3
500	5.4	10.6	13.4	16.2	16.9	17.9	18.4	19.4	19.7	19.9	19.9
1,000	5.0	9.7	12.4	14.8	15.6	16.8	17.8	18.8	19.2	19.3	19.4
2,000	4.6	8.5	11.0	13.0	14.0	15.5	16.9	18.0	18.4	18.6	18.7
5,000	3.8	6.8	8.9	10.5	11.5	13.2	15.1	16.4	16.8	17.1	17.3
10,000	3.1	5.5	7.2	8.5	9.5	11.1	13.3	14.3	14.9	15.4	15.7
20,000	2.3	4.1	5.4	6.5	7.4	8.6	10.9	11.8	12.4	13.3	13.7
50,000	1.2	2.2	3.0	3.7	4.5	5.3	6.8	7.7	8.7	9.9	10.4
100,000	0.4	0.8	1.2	1.6	2.3	2.6	3.4	4.4	5.6	6.9	7.4

*Storm Rainfall in the U. S., LMV 2-26, C. of E., U. S. Army



STORM OF JUNE 27-JULY 4, 1936

Meteorological Summary

Although the weak tropical disturbance that passed inland over Corpus Christi, Tex., on the morning of June 27 produced only a small area of moderate rain, the heavy rains that fell after the disturbance passed inland were due to factors indirectly attributable to the disturbance. By morning of the 28th, the tropical disturbance had disappeared and only a trough oriented north-south remained. Intense thunderstorm activity broke out in this trough as it moved westward, the heaviest amount recorded being 15 in. at Eagle Pass, Tex., near midnight of June 28.

Anticyclonic flow was renewed over the southwestern Gulf and Texas coast, while just west of this area the flow remained cyclonic as an extensive trough expanded eastward from the Rockies. By June 29 the isobaric convergence was well established, persisting until July 1, with the extreme heavy rains occurring in this period.

On July 1 thunderstorms, accompanied by more moderate rains, developed in northeastern Texas and Louisiana as a result of cyclogenesis along a cold front which had moved southeastward into the area. The resulting Low deepened slightly then gradually filled as it moved eastward. By morning of July 4 only a slight remnant of the Low remained in eastern Tennessee and the Bermuda High had moved back over the region.

Rainfall Data*

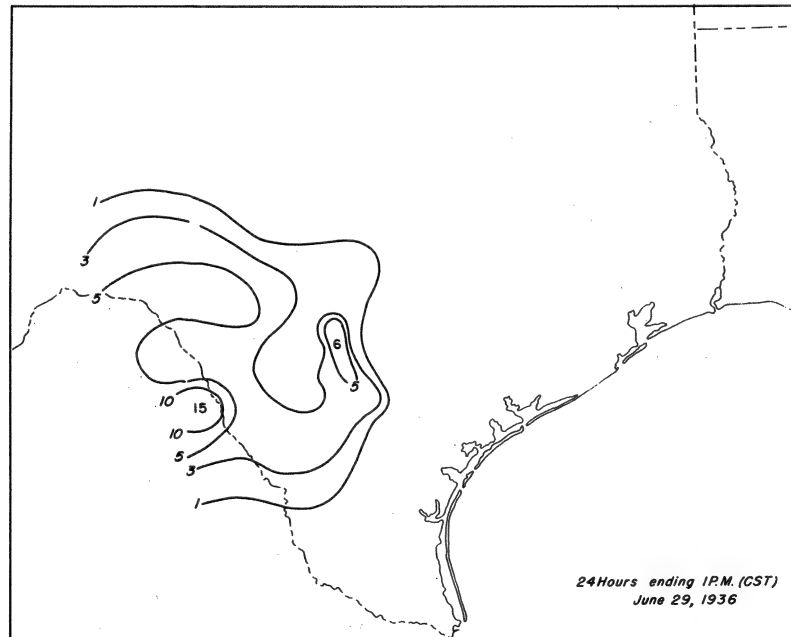
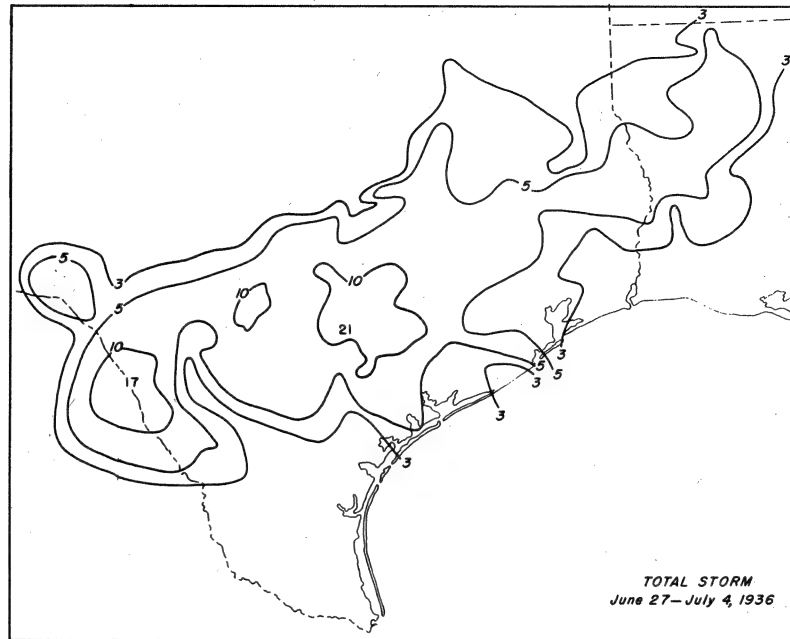
Maximum Total-Storm Amount

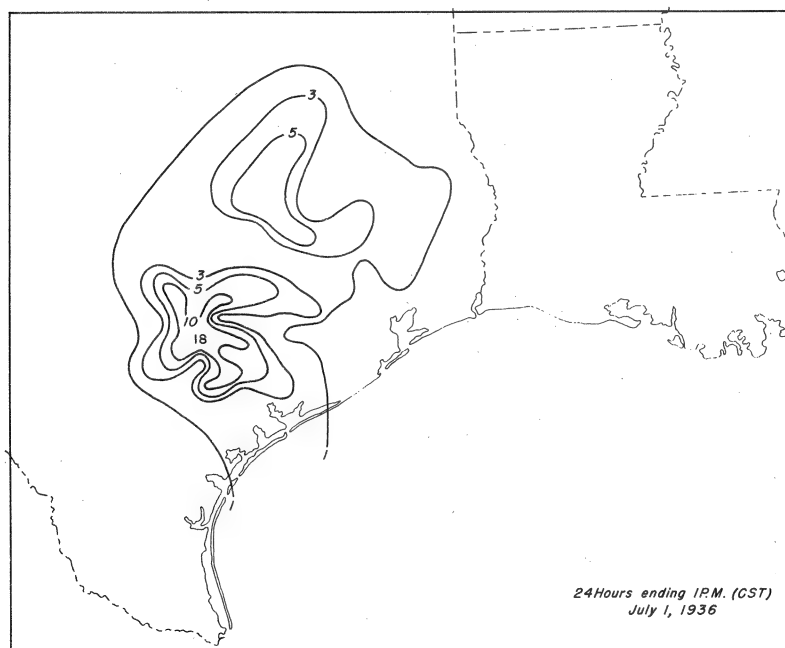
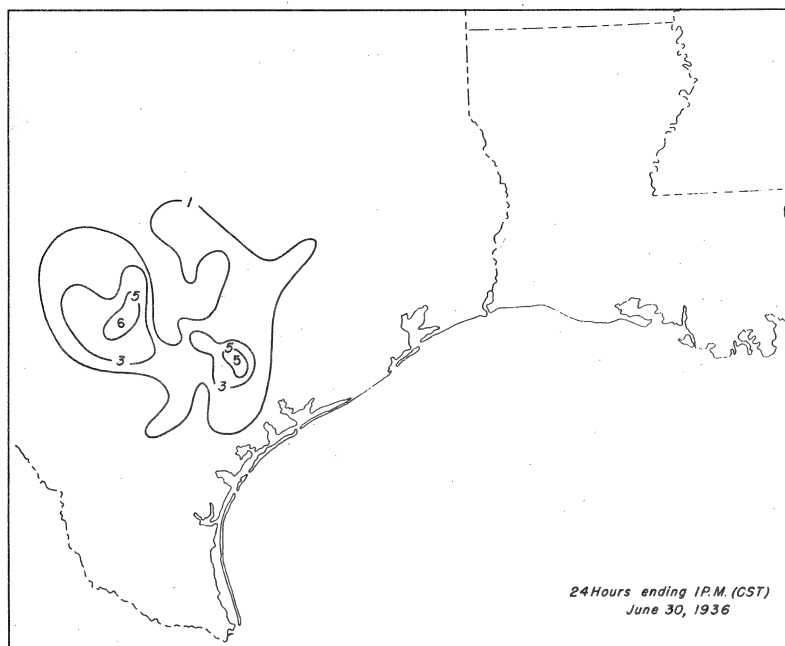
Bebe, Tex.: 21.0 in. from 1 a.m. CST, June 30, to 1 p.m. CST, July 1

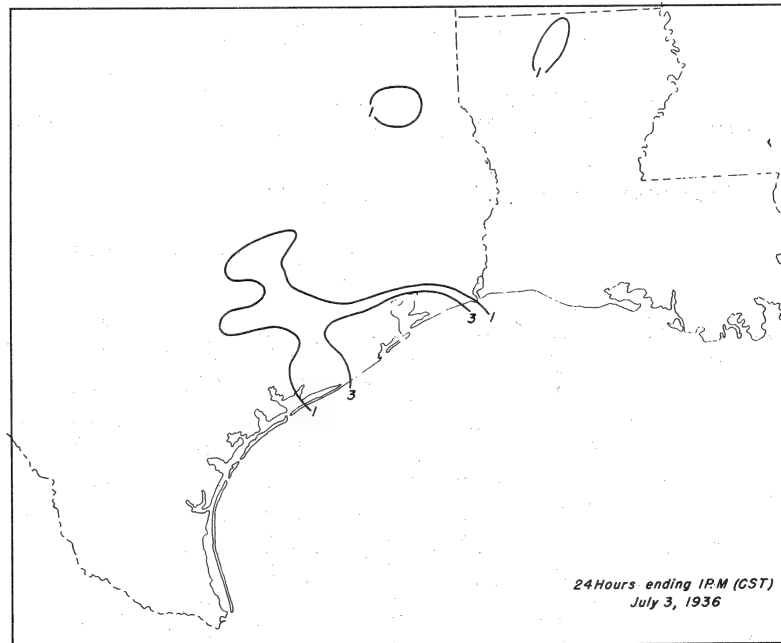
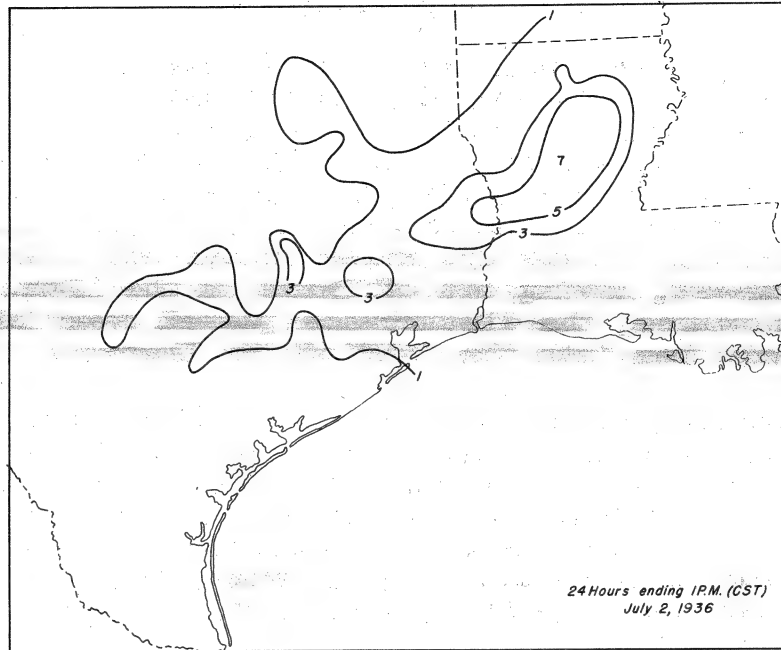
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours											
	6	12	18	24	30	36	48	60	72	96	120	168
10	14.0	16.0	16.8	18.0	18.8	20.8	21.0	21.0	21.0	21.0	21.0	21.0
100	12.7	14.4	14.9	16.1	17.0	18.4	18.9	19.2	19.4	20.2	20.2	20.2
200	12.2	13.8	14.3	15.4	16.2	17.7	18.2	18.4	18.6	19.3	19.3	19.3
500	11.5	13.0	13.4	14.4	14.8	16.2	16.7	17.0	17.2	17.8	17.8	17.8
1,000	10.9	12.3	12.6	13.4	13.6	14.9	15.4	15.7	15.8	16.5	16.5	16.7
2,000	10.1	11.4	11.6	12.2	12.4	13.4	13.8	14.1	14.3	14.9	14.9	15.2
5,000	8.1	9.1	9.6	10.0	10.2	10.9	11.2	11.5	11.9	12.5	12.5	13.1
10,000	5.7	6.9	7.6	8.0	8.3	8.9	9.2	9.7	10.2	10.8	10.8	11.5
20,000	4.0	5.1	5.6	6.1	6.6	7.2	7.5	8.1	8.5	9.1	9.2	10.0
50,000	2.3	3.1	3.6	4.1	4.6	5.0	5.4	6.0	6.3	7.0	7.2	7.9
100,000	1.2	1.8	2.3	2.8	3.0	3.4	3.8	4.4	4.6	5.3	5.7	6.3

*Storm Rainfall in the U. S., GM 5-6, C. of E., U. S. Army







STORM OF AUGUST 16-21, 1915

Meteorological Summary

The severe hurricane that entered the Texas coast between Galveston and Velasco during the night of August 16-17 was detected between Barbados and Dominica, Windward Islands, on the 10th. The hurricane moved westward, passed south of Haiti on the 14th, curved to the northwest through the Yucatan Channel on the 15th and, after crossing the Gulf, entered the Texas coast during the night of the 16th-17th. The hurricane continued to move north-westward until it was 150 miles inland and then began a slow recurvature to the northeast, moving out of Texas on the 19th. Continuing on its north-eastward course, the disturbance passed over Lake Erie into the St. Lawrence Valley and then into the Gulf of St. Lawrence on the 24th.

Rainfall was heavy ahead and to the right of the disturbance as it crossed the Texas coast and continued moderate to heavy in the forward quadrants of the storm as it moved through eastern Texas on the 18th, Oklahoma, Arkansas, and western Tennessee on the 19th, and southern Illinois on the 20th. After moving through southern Illinois rainfall amounts diminished in intensity. Since 12-hour isohyetal maps were available for this storm, they are presented here to show the hurricane rainfall.

A more detailed discussion of this storm may be found in "Tropical Cyclones" by I. M. Cline, pp. 72-106.

Rainfall Data*

Maximum Total-Storm Amount

San Augustine, Tex.: 19.8 in. from 7 p.m. August 16, to 1 p.m. August 19

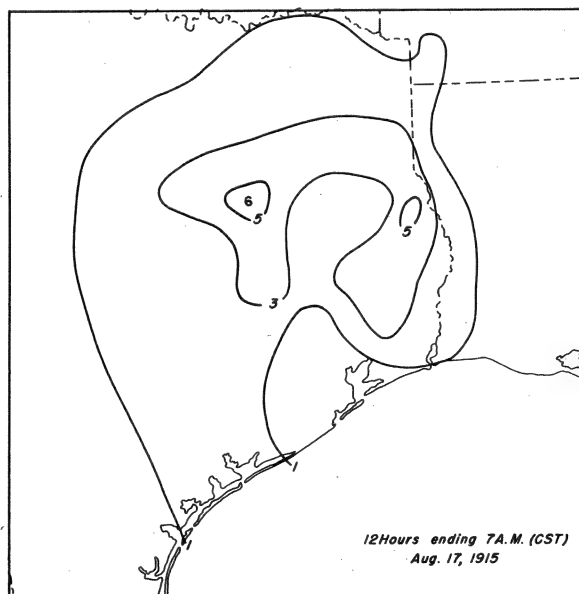
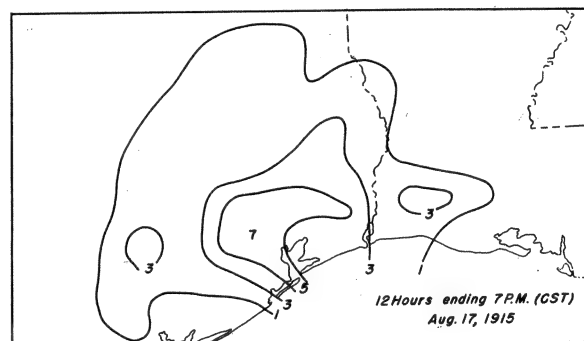
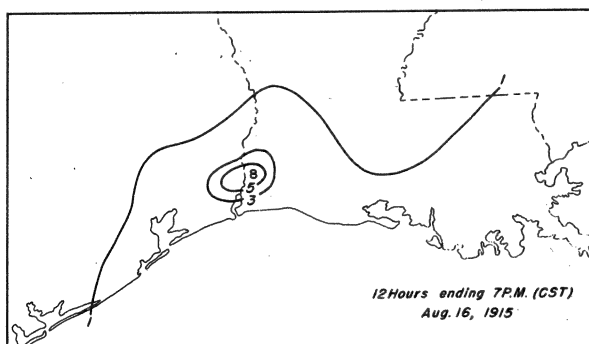
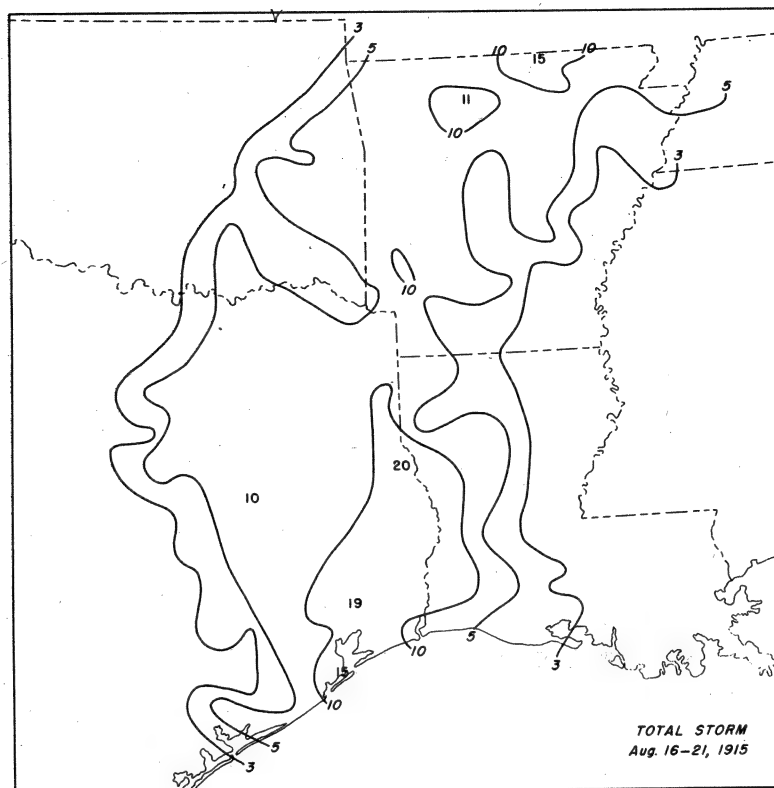
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	120
10	5.6	8.1	8.8	10.6	13.3	15.9	18.8	19.7	19.8	19.8	19.8
100	4.5	6.8	7.7	9.8	12.3	14.6	17.7	18.8	19.1	19.3	19.4
200	4.1	6.4	7.3	9.6	12.0	14.2	17.3	18.5	18.8	19.1	19.2
500	3.7	5.8	6.9	9.2	11.4	13.5	16.8	18.1	18.6	18.8	18.9
1,000	3.4	5.4	6.6	8.6	10.7	12.7	16.1	17.6	18.3	18.7	18.7
2,000	3.1	5.0	6.2	8.1	9.9	11.7	14.7	17.0	18.1	18.4	18.4
5,000	2.6	4.5	5.7	7.3	8.7	10.1	12.5	15.5	17.1	17.5	17.6
10,000	2.3	4.1	5.3	6.4	7.7	8.8	10.7	13.7	15.3	16.0	16.1
20,000	1.9	3.4	4.6	5.4	6.5	7.5	9.0	10.8	12.3	13.7	14.0
50,000	1.0	2.1	2.9	3.7	4.5	5.2	6.8	7.7	8.9	10.7	11.2
100,000	0.7	1.4	2.0	2.6	3.3	3.9	5.3	6.1	7.1	8.6	9.1
200,000	0.6	1.0	1.5	2.0	2.5	3.0	3.9	4.8	5.6	6.7	7.0

*Storm Rainfall in the U. S., IMV 1-10, C. of E., U. S. Army



STORM OF JULY 26-AUGUST 2, 1908

Meteorological Summary

A shallow tropical disturbance advanced from the Caribbean into the Gulf of Mexico from July 21 to July 22. Pressure continued low over the Gulf and on July 25 the weak tropical disturbance drifted slowly northward and became nearly stationary off the Louisiana-Texas coasts. The disturbance moved northward and inland during the evening of July 30 and dissipated over northern Louisiana during the night of August 2. The centers of heavy rainfall and general showers resulted from the approach and passage of this tropical disturbance. The areas of intense rainfall progressed northward as the disturbance moved in that direction, with the greatest amounts being recorded on the coast on July 29 and July 30. Further north, the greatest amounts were recorded on August 1 and August 2.

Rainfall Data*

Maximum Total-Storm Amount

Franklin, La.: 19.6 in. from 9 a.m. CST, July 27, to 9 a.m. CST, August 2

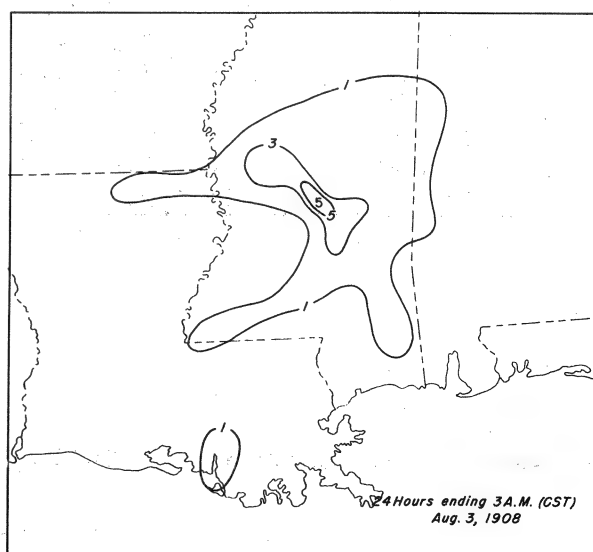
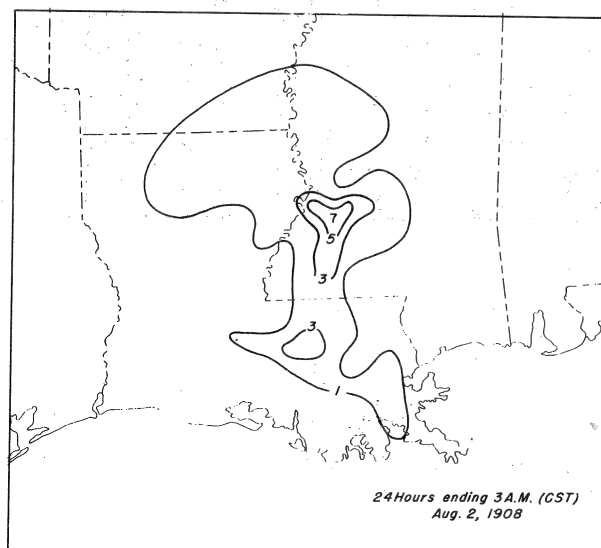
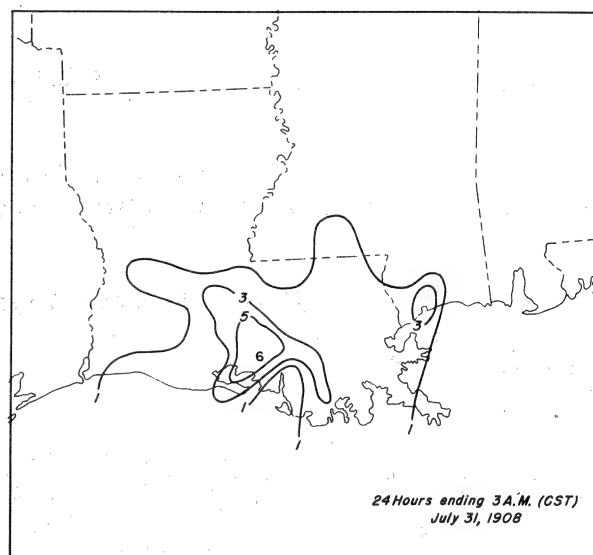
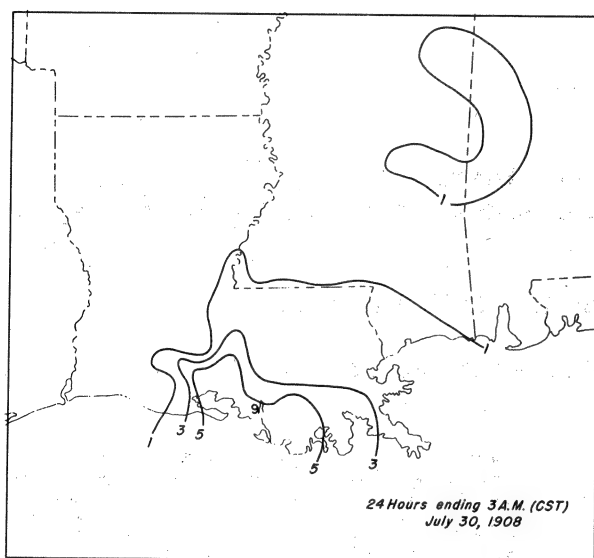
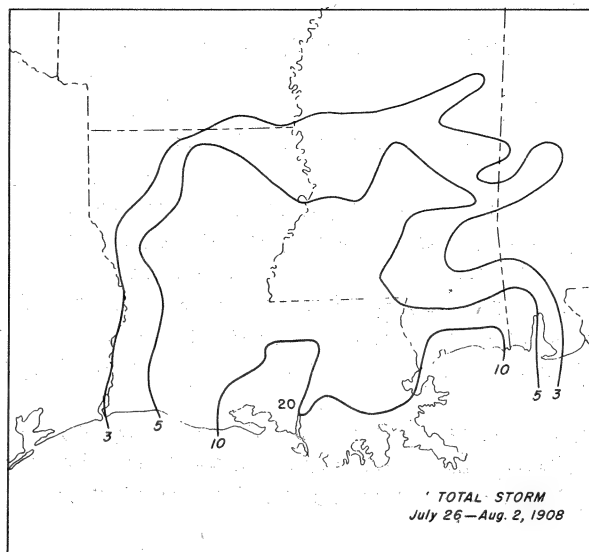
Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	48	72	96	120	150	186
Max. Station	5.4	8.3	8.4	10.0	14.0	15.6	17.6	18.4	18.8	19.6	19.6
100	5.3	7.9	8.3	9.9	13.8	15.4	16.9	17.9	18.6	19.4	19.4
200	5.3	7.7	8.1	9.8	13.6	15.2	16.5	17.6	18.3	19.2	19.2
500	5.1	7.2	7.9	9.5	13.0	14.5	15.8	16.8	17.5	18.3	18.5
1,000	4.9	6.8	7.4	9.2	12.3	13.7	14.9	15.8	16.5	17.3	17.5
2,000	4.4	6.1	6.7	8.8	11.1	12.4	13.6	14.4	15.1	15.9	16.3
5,000	3.4	4.9	5.5	7.4	9.0	10.0	11.2	12.1	12.7	13.6	14.4
10,000	2.4	3.8	4.2	5.5	7.0	7.9	9.0	10.1	10.7	11.7	12.6
20,000	1.6	2.5	2.8	3.5	4.8	5.7	6.6	7.7	8.6	9.7	10.7
50,000	0.8	1.2	1.4	1.8	2.4	3.3	4.0	4.9	5.8	7.0	7.9
76,600	0.5	0.9	1.0	1.3	1.8	2.5	3.2	3.8	4.7	5.7	6.5

*Storm Rainfall in the U. S., IMV 3-14, C. of E., U. S. Army



STORM OF AUGUST 26-29, 1945

Meteorological Summary

The tropical disturbance that produced heavy rains over the fringe of the Texas coast originated in the southwestern Gulf of Mexico and reached hurricane intensity by August 24. It moved northward, passing east of Corpus Christi, Tex., on August 26. Here it curved to the north-northeast and followed the Texas coastline for nearly 100 miles before it moved inland, about 5 miles, west of Port Aransas, Tex., on the morning of August 27.

Due to the extremely slow movement of the tropical disturbance - 5 mph - it produced heavy rainfall, most of which occurred ahead and to the right of the center of the tropical disturbance as it moved along and then across the Texas coast.

Rainfall Data*

Maximum Total-Storm Amount

Hockley(near)Tex.: 19.6 in. from 7 a.m. CST August 26 to 1 p.m. CST August 29

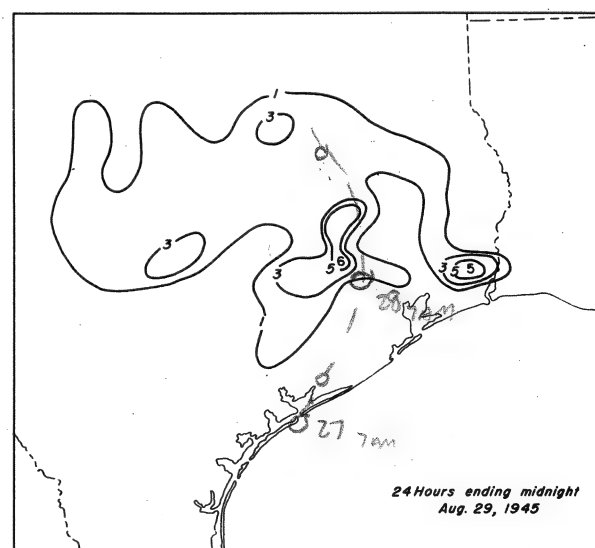
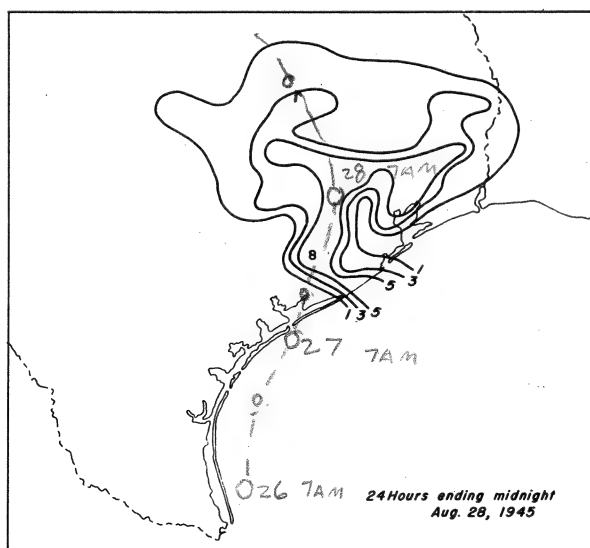
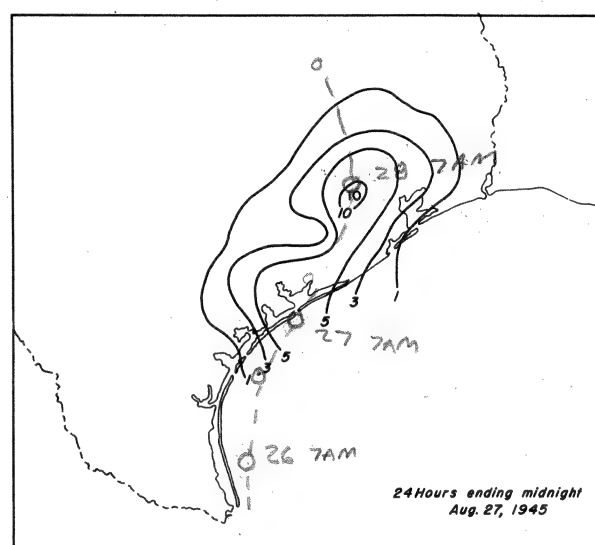
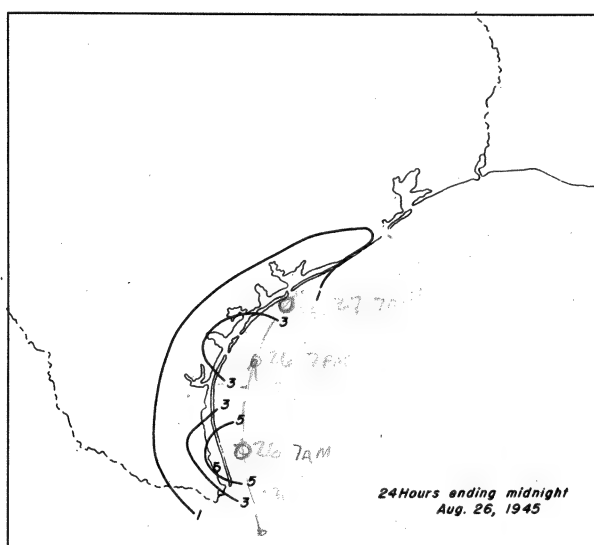
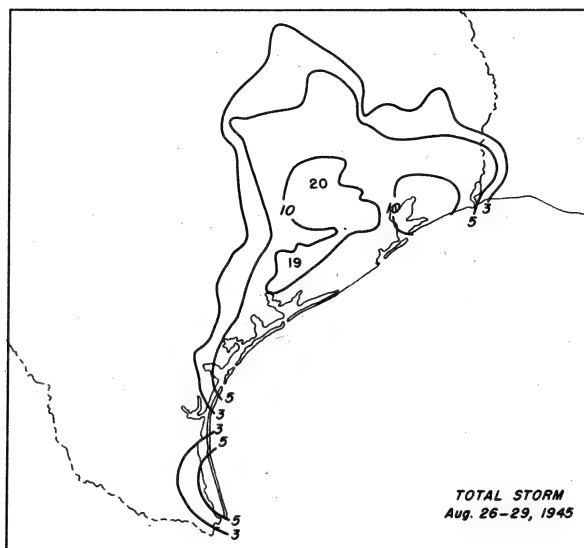
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72
Station P 10	10.1	12.9	17.1	18.7	19.3	19.3	19.5	19.6	19.6
100	8.1	11.3	15.0	16.7	17.5	17.7	18.7	19.0	19.0
200	7.5	10.8	14.3	15.7	16.7	16.8	18.3	18.5	18.5
500	6.6	10.2	13.4	14.5	15.5	15.8	17.5	17.6	17.6
1,000	5.7	8.9	12.1	13.4	14.5	15.0	16.2	16.3	16.3
2,000	5.0	7.4	10.4	12.4	13.4	13.8	14.5	14.7	14.7
5,000	4.6	6.2	8.9	10.8	11.8	12.2	12.8	13.3	13.3
10,000	3.3	5.1	7.4	9.1	10.1	10.4	11.1	11.5	11.7
20,000	2.4	3.9	5.5	6.8	7.7	8.2	8.8	9.3	9.5
34,000	1.6	2.7	3.8	4.8	5.5	6.1	6.7	7.2	7.4

*Storm Rainfall in the U. S., GM 5-23, C. of E., U. S. Army



STORM OF AUGUST 12-15, 1938

Meteorological Summary

The small intense hurricane that struck the Louisiana coast early on the evening of August 14 was first detected on the 9th in the eastern Caribbean as a weak tropical Low. It consolidated with another tropical Low south of Cuba on August 12 and then moved northwestward, skirting the western edge of the Bermuda High. It passed through the Yucatan Channel into the Gulf of Mexico on August 13 and moved rapidly northeastward, reaching the western Louisiana coast by evening of the 14th. Light rainfall began along the Louisiana coast during the morning of August 14. The heaviest burst of rain occurred in the forward and eastern quadrants of the tropical disturbance as it moved inland. Rainfall diminished rapidly as the disturbance moved inland and lost its identity in a large flat low-pressure system centered over western Texas.

Rainfall Data*

Maximum Total-Storm Amount

Koll, La.: 14.9 in. from 3 p.m. CST, August 13, to 3 p.m. CST, August 15

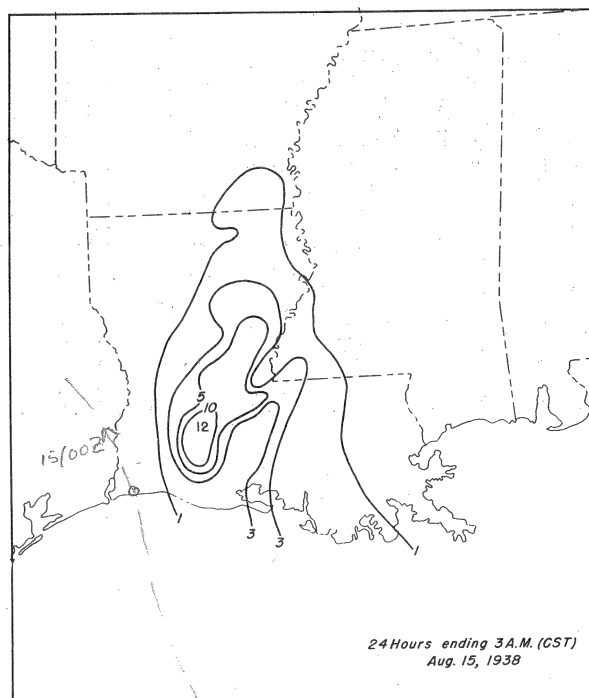
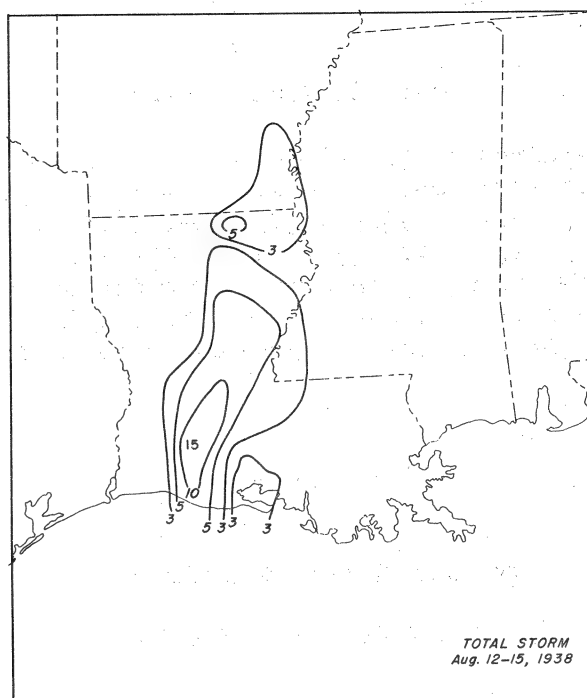
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	90
10	10.9	13.1	13.5	14.6	14.9	15.0	15.3	15.4	15.4	15.4
100	9.5	11.4	12.3	14.2	14.5	14.7	14.8	15.0	15.0	15.0
200	9.4	11.3	12.0	13.9	14.2	14.4	14.5	14.8	14.8	14.8
500	9.0	10.7	11.4	13.1	13.5	13.5	13.7	13.9	13.9	13.9
1,000	8.4	9.8	10.6	12.0	12.4	12.4	12.6	12.9	12.9	12.9
2,000	7.6	8.7	9.6	10.6	11.1	11.1	11.3	11.6	11.6	11.6
5,000	6.1	6.9	7.8	8.6	8.9	8.9	9.2	9.4	9.4	9.4
10,000	4.6	5.3	6.1	6.8	7.1	7.1	7.4	7.6	7.6	7.6
20,000	2.8	3.5	4.1	4.7	4.7	5.0	5.4	5.8	5.8	5.8
34,000	1.4	1.9	2.4	2.9	3.4	3.6	3.7	4.0	4.0	4.3

*Storm Rainfall in the U. S., LMV 4-23, C. of E., U. S. Army



STORM OF AUGUST 23-26, 1926

Meteorological Summary

The hurricane involved in the storm period, August 23-26, was of remarkable extent. It moved from the southeastern Gulf on August 22 to Terrebonne Parish, La., on the morning of August 25, whence it curved to the northwest to expend itself in central Louisiana on the following day. Rainfall along the coast from Florida to Louisiana was moderate to heavy from August 24 to August 26, due in part to sister disturbances of the principal hurricane and local instability immediately preceding the hurricane passage.

Rainfall Data*

Maximum Total-Storm Amount

Donaldsonville, La.: 14.5 in. from 7 a.m. CST, Aug. 25, to 7 a.m. CST, Aug. 26

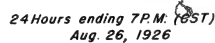
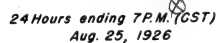
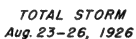
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72
Max. Station	5.4	10.6	13.8	14.5	14.5	14.5	14.5	14.5	14.5
30	5.3	10.3	13.5	14.3	14.3	14.3	14.3	14.3	14.3
100	5.0	9.7	12.8	13.6	13.6	13.6	13.7	13.7	13.7
200	4.8	9.2	12.3	13.0	13.0	13.0	13.2	13.2	13.2
500	4.5	8.5	11.4	12.2	12.2	12.2	12.5	12.5	12.5
1,000	4.3	7.8	10.7	11.5	11.5	11.5	11.8	11.8	11.8
2,000	4.0	7.0	9.7	10.5	10.6	10.6	10.7	11.0	11.0
5,000	3.4	5.9	8.2	9.1	9.2	9.2	9.3	9.6	9.6
10,000	2.9	5.0	7.0	7.8	7.9	8.0	8.1	8.4	8.4
20,000	2.3	4.0	5.6	6.3	6.5	6.7	6.8	7.1	7.1
50,000	1.4	2.7	3.6	4.3	4.5	4.7	4.8	5.0	5.0

*Storm Rainfall in the U. S., LMV 4-5, C. of E., U. S. Army



STORM OF SEPTEMBER 28-30, 1915

Meteorological Summary

On September 28, a hurricane of great intensity was moving northwestward across the Gulf of Mexico, having passed through the Yucatan Channel from the Caribbean. By that night rain was falling at some Louisiana coastal stations, some fifteen hours in advance of the tropical disturbance. Rainfall increased in intensity as the tropical disturbance approached. On the morning of September 29, the hurricane moved inland near Burrwood, La., and heavy rains spread throughout southern Louisiana and southern Mississippi. The hurricane center, after passing inland, curved northward, then northeastward, abruptly ending rainfall at stations as it passed. Heavy rainfall continued in advance of the disturbance as it consolidated with a quasi-stationary front situated in central Mississippi and formed a new extratropical low center that moved rapidly northeastward, passing west of the Appalachian mountains.

Rainfall Data*

Maximum Total-Storm Amount

Franklinton, La.: 14.4 in. from 8 a.m. CST, Sept. 29 to 6 a.m. CST, Sept. 30

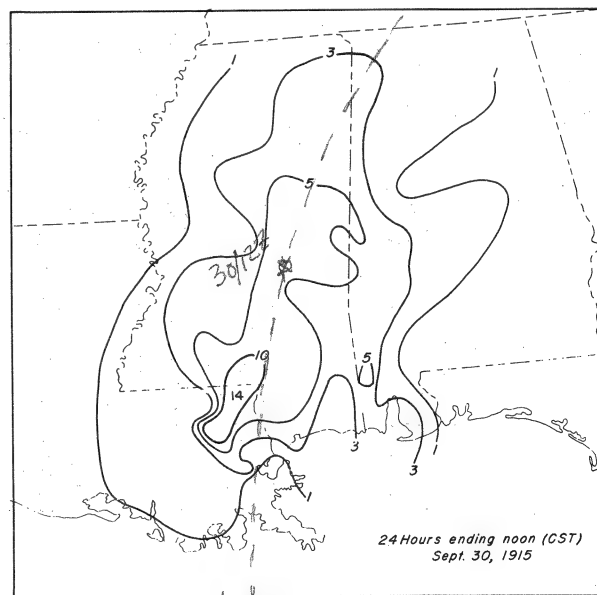
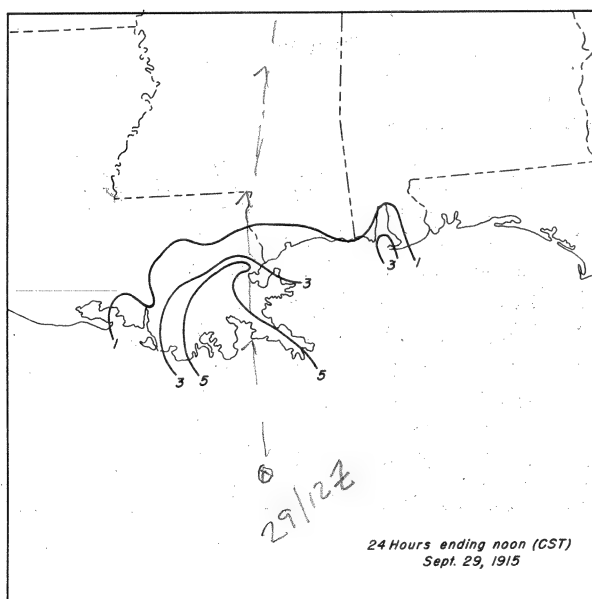
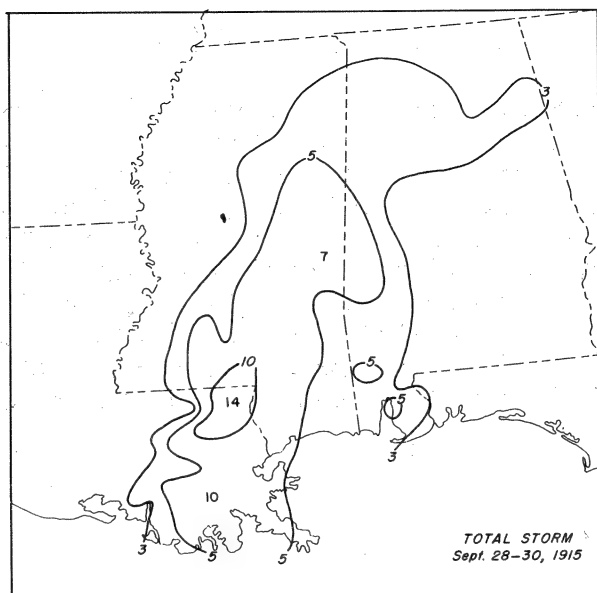
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	54
10	10.1	13.4	14.1	14.4	14.4	14.4	14.4	14.4
100	9.4	12.9	13.4	13.9	13.9	13.9	13.9	13.9
200	9.1	12.6	13.1	13.6	13.6	13.6	13.6	13.6
500	8.4	12.1	12.6	13.0	13.0	13.0	13.0	13.0
1,000	7.7	11.5	12.0	12.4	12.4	12.4	12.4	12.4
2,000	6.9	10.4	11.0	11.4	11.5	11.5	11.5	11.5
5,000	5.6	8.7	9.4	9.9	10.0	10.0	10.1	10.1
10,000	4.5	7.1	8.0	8.6	8.8	8.8	8.9	8.9
20,000	3.2	5.3	6.4	7.1	7.4	7.4	7.5	7.5
50,000	1.2	2.8	4.0	4.9	5.2	5.5	5.7	5.7

*Storm Rainfall in the U. S., LMV 2-13, C. of E., U. S. Army



STORM OF SEPTEMBER 19-22, 1909

Meteorological Summary

The hurricane producing the heavy rainfall of this storm was located in the central Caribbean on September 16. After striking the Louisiana coast at Terrebonne Parrish during the night of September 19, it traveled in a northwesterly direction, curving northward just west of St. Francisville, La., and continuing with diminishing intensity. It passed Stuttgart, Ark., on the morning of September 21 and finally expended itself in the Upper Mississippi Valley. Marked convergence in the moisture-laden air produced rainfall along and to the east of the hurricane path. The heaviest rainfall occurred in advance of the hurricane center and diminished rapidly at all stations with the advent of the lowest pressure, ceasing entirely soon thereafter.

Rainfall Data*

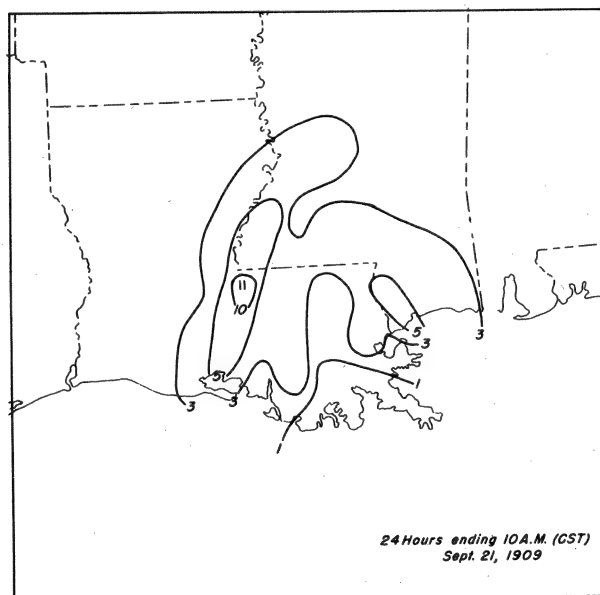
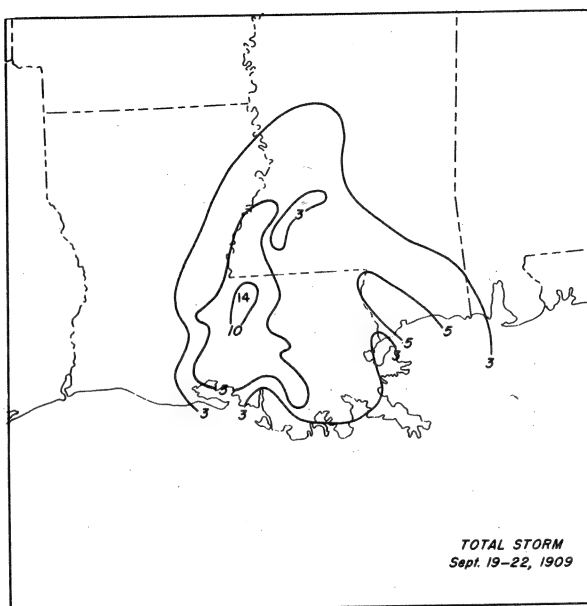
Maximum Total-Storm Amount

St. Francisville, La.: 13.5 in. from 4 a.m. to 10 p.m. CST September 20

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours							
	6	12	18	24	30	36	48	66
10	8.2	11.3	13.5	13.5	13.5	13.5	13.5	13.5
100	7.3	10.3	12.8	12.8	12.8	12.8	12.8	12.8
200	6.9	9.8	12.4	12.4	12.4	12.4	12.4	12.4
500	6.0	8.9	11.3	11.3	11.4	11.4	11.4	11.4
1,000	4.9	8.0	10.1	10.2	10.3	10.4	10.4	10.4
2,000	4.1	7.0	8.8	9.0	9.2	9.3	9.3	9.3
5,000	3.0	5.7	7.1	7.4	7.7	7.8	7.8	7.8
10,000	2.3	4.7	5.9	6.2	6.5	6.6	6.6	6.6
20,000	1.9	3.7	4.6	5.0	5.3	5.4	5.4	5.4
31,000	1.6	3.0	3.8	4.3	4.5	4.6	4.6	4.6

*Storm Rainfall in the U. S., IMV 3-16, C. of E., U. S. Army



STORM OF SEPTEMBER 14-15, 1919

Meteorological Summary

The severe hurricane that reached the Texas coast on September 14 was first observed as a mild disturbance at about 17°N and 63°W on September 2. It proceeded westward and increased in intensity, passing through the Florida Straits as a storm of terrific force during the night of September 9. It then turned and moved very slowly towards the Louisiana coast. On September 13 the disturbance curved again to the west and moved in a straight line passing inland a short distance to the south of Corpus Christi, Tex., during the afternoon of September 14. Heavy rains accompanied this disturbance as it moved westward through southern Texas on September 14, then northward along the Pecos Valley on September 15, and finally northeastward across the Texas, Oklahoma, and Colorado boundaries. The heavy rains ended during the night of September 16.

Rainfall Data*

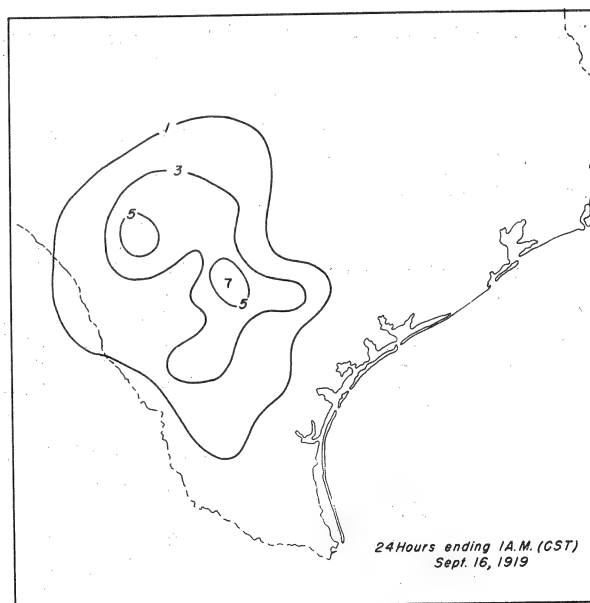
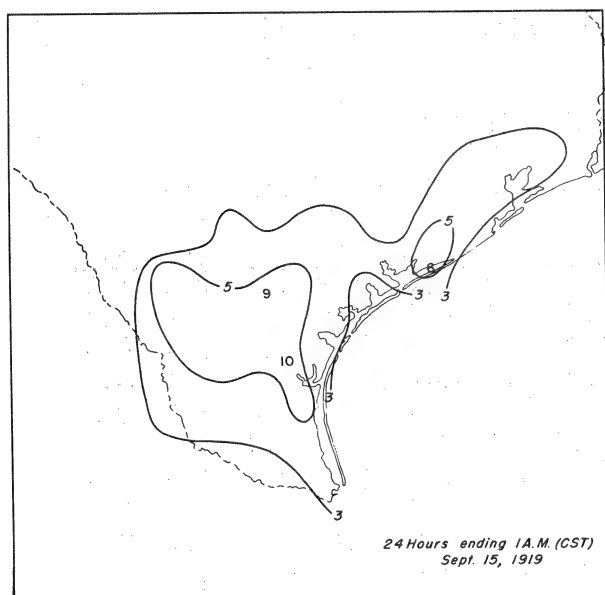
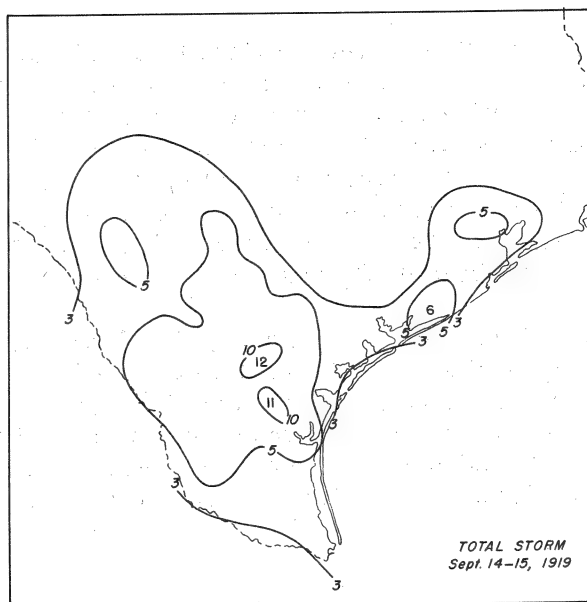
Maximum Total-Storm Amount

George West, Tex.: 12.0 in. from 7 a.m. CST Sept. 14 to 1 p.m. CST Sept. 15

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours					
	6	12	18	24	30	42
10	7.0	8.9	10.0	11.0	12.0	12.0
100	6.5	8.5	9.6	10.5	11.6	11.6
200	6.3	8.2	9.4	10.4	11.4	11.4
500	5.8	7.8	9.1	10.1	11.0	11.1
1,000	5.4	7.3	8.8	9.8	10.6	10.7
2,000	4.9	6.8	8.4	9.5	10.2	10.3
5,000	4.1	5.9	7.7	8.8	9.4	9.5
10,000	3.4	5.1	7.0	8.1	8.5	8.7
20,000	2.6	4.2	6.0	6.9	7.2	7.5
40,000	1.9	3.2	4.8	5.5	5.8	6.1
60,000	1.4	2.6	3.9	4.5	4.9	5.2

*Storm Rainfall in the U. S., GM 5-15A, C. of E., U. S. Army



STORM OF OCTOBER 14-18, 1932

Meteorological Summary

The weak tropical disturbance that entered the Louisiana coast during the afternoon of October 15 was first observed between Swan Island and Cape Gracias on the 7th. The disturbance moved west-northwestward, passed inland over the Yucatan Peninsula on the 10th, entered the southwestern Gulf of Mexico on the 12th, and began to recurve sharply northeastward on the 13th. Moving northeastward, the disturbance entered the Louisiana coast on the 15th. The disturbance then deepened and moved slowly northeastward, finally passing out to sea over the Delmar Peninsula on the afternoon of the 18th.

Rainfall was moderate to heavy to the right of the disturbance as it moved inland on the 15th. After the disturbance moved inland and deepened, heavy rain spread through the Southeastern and Gulf States, with one rainfall maximum occurring over north-central Alabama on the 15th-16th. Another rainfall maximum occurred over the western Carolinas and Virginia** on the 16th-17th as the decaying hurricane was passing through that area.

Rainfall Data*

Maximum Total-Storm Amount

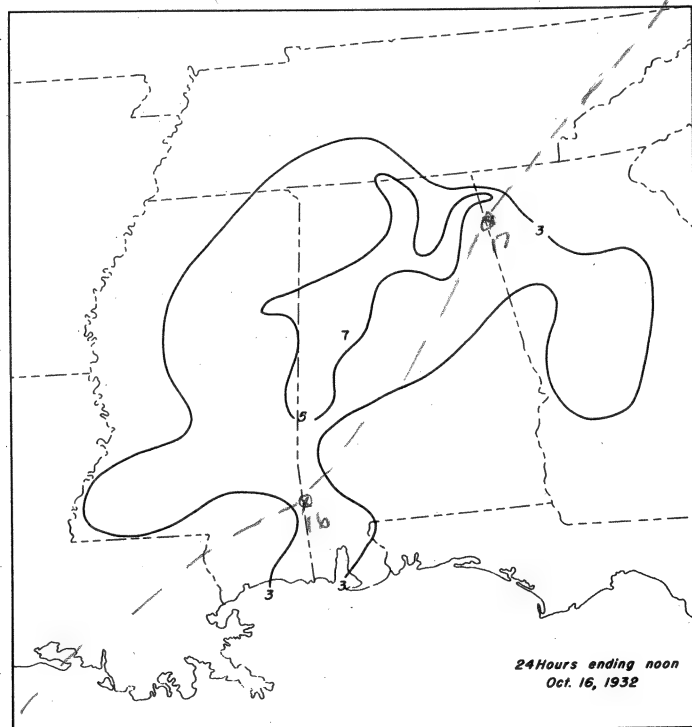
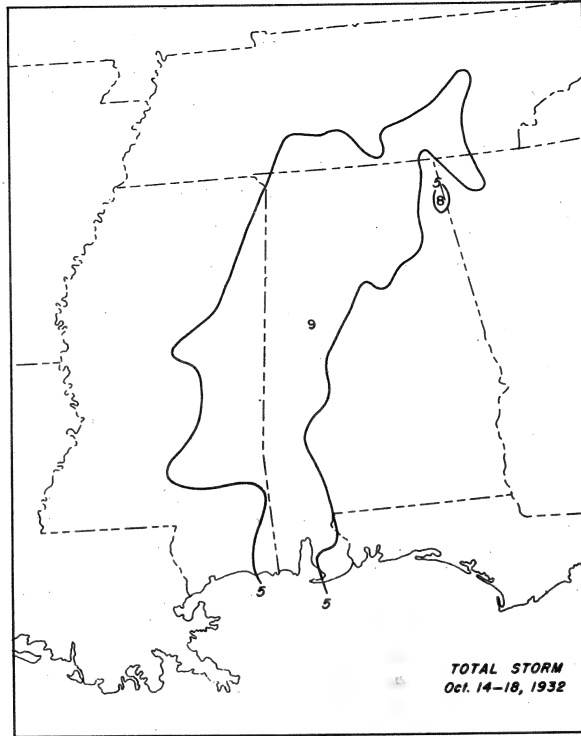
Tuscaloosa, Ala.: 8.5 in. from 7 a.m. CST, Oct. 15 to midnight CST, Oct. 16

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours									
	6	12	18	24	30	36	48	60	72	90
10	3.1	5.6	6.6	7.2	7.6	8.2	8.5	8.5	8.5	8.5
100	2.8	5.1	6.3	7.0	7.5	8.1	8.4	8.4	8.4	8.4
200	2.7	4.9	6.1	7.0	7.4	8.0	8.3	8.4	8.4	8.4
500	2.6	4.7	6.0	6.9	7.4	8.0	8.3	8.3	8.3	8.3
1,000	2.5	4.5	5.8	6.8	7.3	7.9	8.1	8.2	8.2	8.2
2,000	2.3	4.3	5.6	6.6	7.1	7.8	8.0	8.1	8.1	8.1
5,000	2.1	4.0	5.4	6.4	6.9	7.5	7.7	7.8	7.9	7.9
10,000	2.0	3.7	5.1	6.1	6.6	7.2	7.4	7.5	7.6	7.6
20,000	1.8	3.4	4.7	5.6	6.1	6.7	6.9	7.0	7.1	7.1
50,000	1.4	2.8	3.9	4.7	5.2	5.6	5.9	6.0	6.1	6.1
70,000	1.2	2.5	3.5	4.1	4.6	5.0	5.2	5.5	5.5	5.5

*Storm Rainfall in the U. S., SA 5-11B, C. of E., U. S. Army

**See page 153, South Atlantic Section



STORM OF JUNE 24-28, 1954 (Alice)

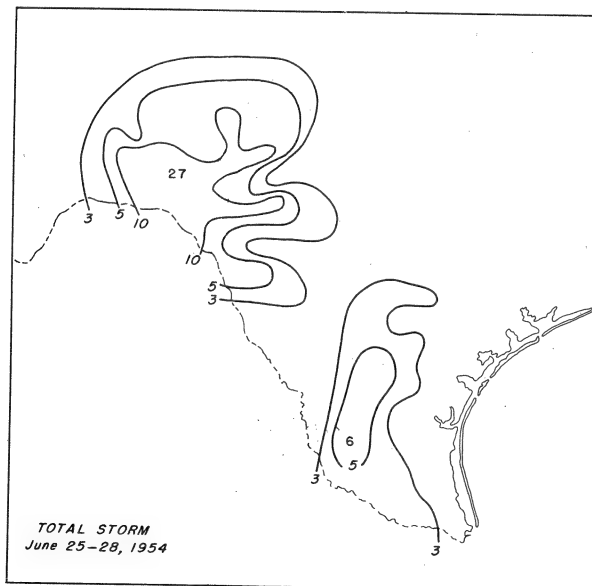
Meteorological Summary

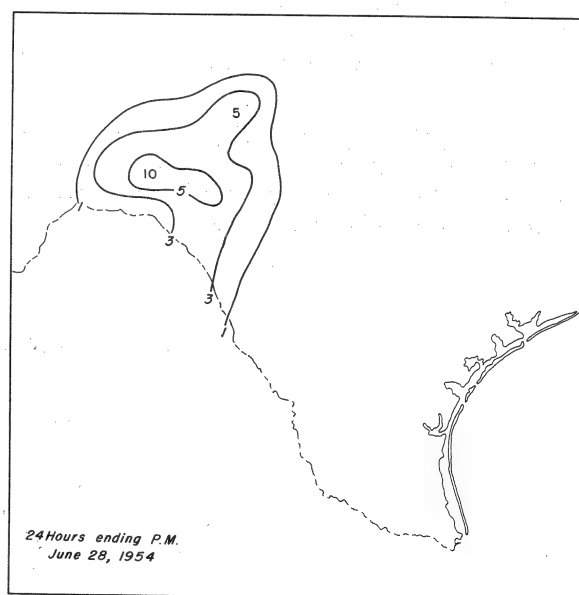
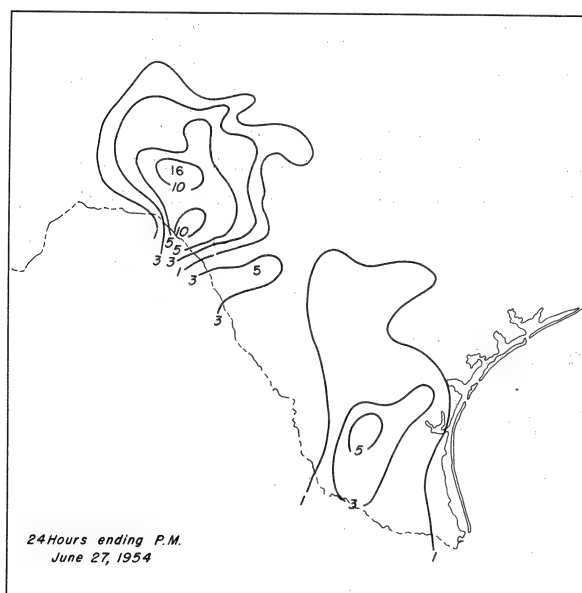
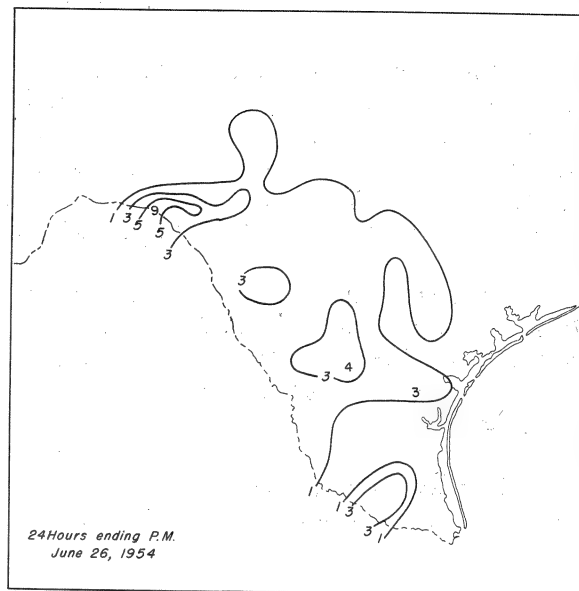
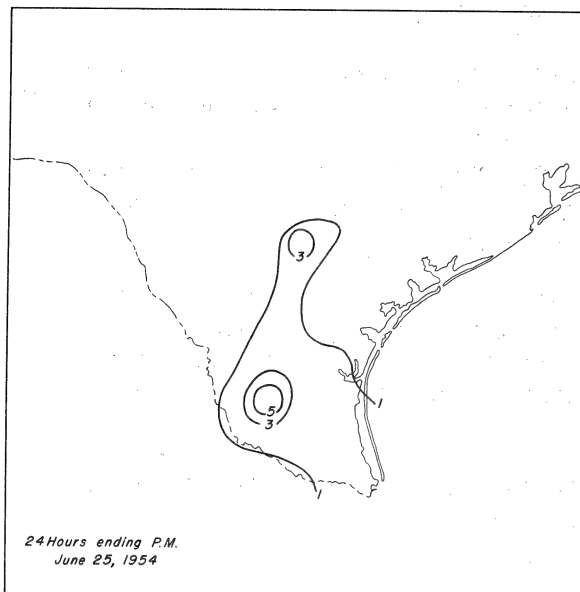
The hurricane that entered the Gulf Coast south of Brownsville, Tex., early on the morning of June 25 was first observed over the western part of the Gulf of Mexico on the 24th. The disturbance developed rapidly in the western Gulf on the 24th, realizing full hurricane intensity early on the 25th. Following a northwestward course, the hurricane crossed the Gulf Coast and, as it moved up the Rio Grande Valley, decreased in intensity and finally dissipated over the mountains of western Texas on the 26th.

Rainfall was not exceptionally heavy along the coastal regions of Texas as the hurricane moved inland on the 25th, but the orographic lifting of the moist tropical air over the mountains of southern Texas produced rather heavy amounts from June 26 to June 28. Due to the dearth of data, the maximum amount used for this storm may be in error.

Maximum Total-Storm Amount

Pandale (nr) Tex.: 27.1 in.





STORM OF JUNE 22-30, 1913

Meteorological Summary

The hurricane that entered the Texas coast near the mouth of the Rio Grande River during the night of June 27-28 formed over the extreme southwestern Caribbean on the 22nd. The disturbance moved northwestward, crossed the northeastern tip of the Yucatan Peninsula, then recurved to the west-northwest on the 26th. During the night of the 27th-28th, the disturbance crossed the Texas coast and dissipated over western Texas.

Rainfall was light to moderate along the coast of southern Texas on June 27 and June 28 as the hurricane moved inland. During the night of the 28th-29th, however, an area of extremely heavy rain occurred as the warm, moist, tropical air near the decaying disturbance underwent orographic lifting.

The following table of rainfall distribution has been included to show the time distribution of rainfall at Montell, Tex.*:

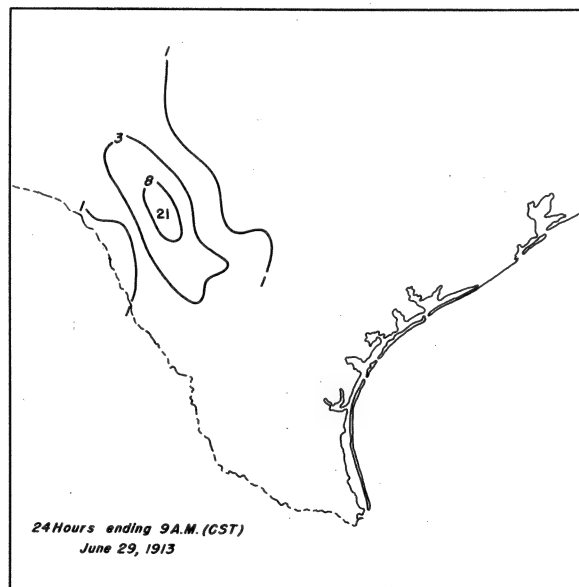
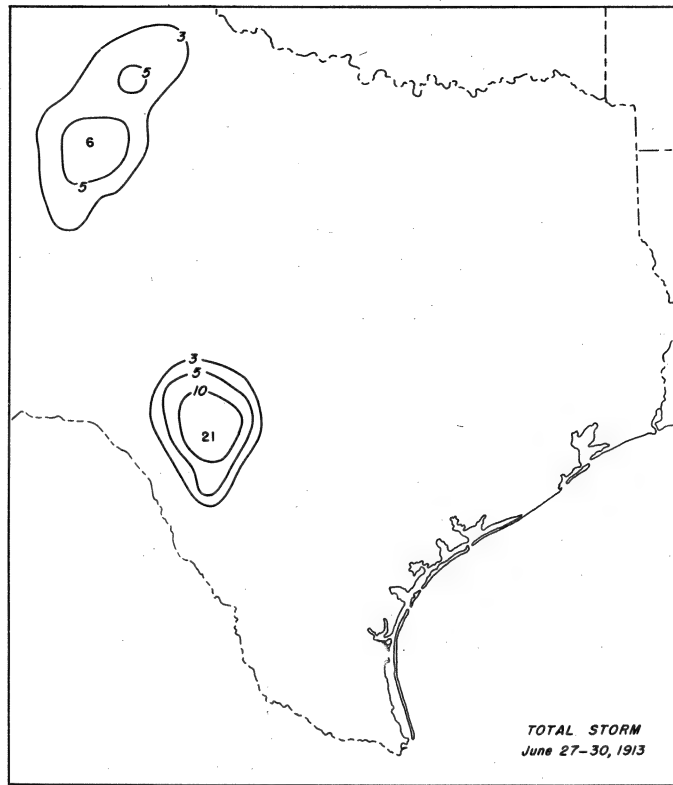
<u>Date</u>	<u>Beginning of Rainfall</u>	<u>Ending of Rainfall</u>	<u>Amount</u>	<u>Accumulation</u>
June 27	5:00 p.m. CST	6:00 p.m. CST	.04	.04
June 28	2:30 p.m. CST		.51	.55
June 29		9:00 a.m. CST	20.05	20.60
June 30	7:30 a.m. CST	11:00 a.m. CST	.10	20.70

The conditions found in this storm bear a similarity to the storm of June 24-28, 1954 (Alice), with light rain occurring along the coast during the hurricane passage and heavy rains falling inland the day after the disturbance crossed the coast.

Maximum Total-Storm Amount

Montell, Tex.: 20.7 in.

*Storm Rainfall in the U. S., GM 3-22 (incomplete), C. of E., U. S. Army



STORM OF SEPTEMBER 16-20, 1943

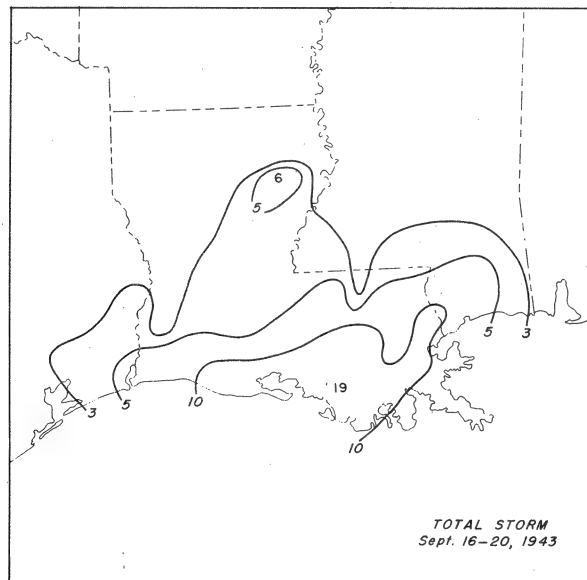
Meteorological Summary

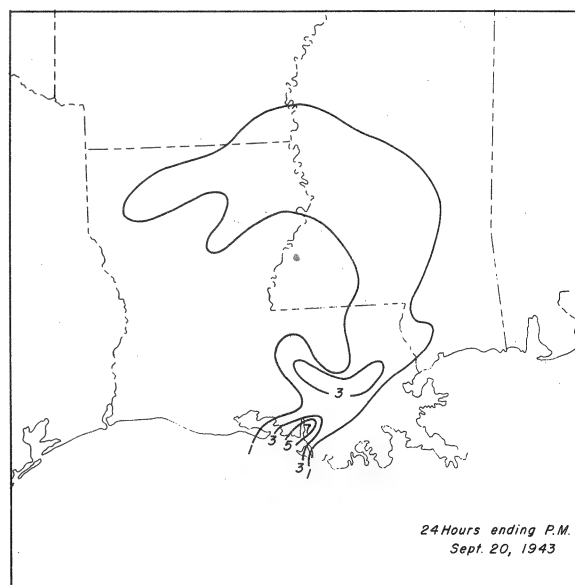
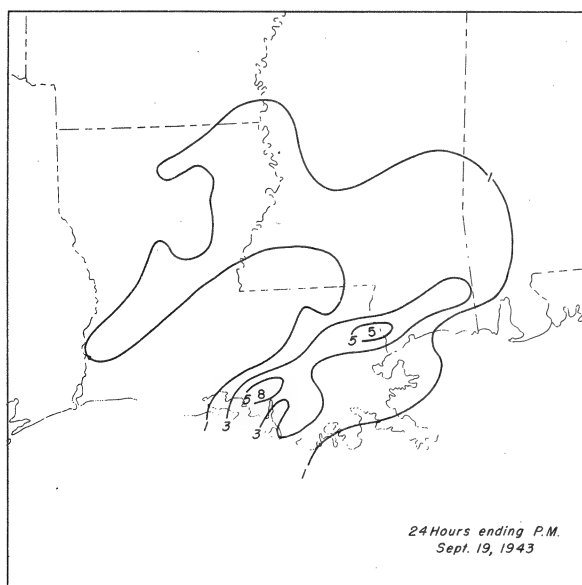
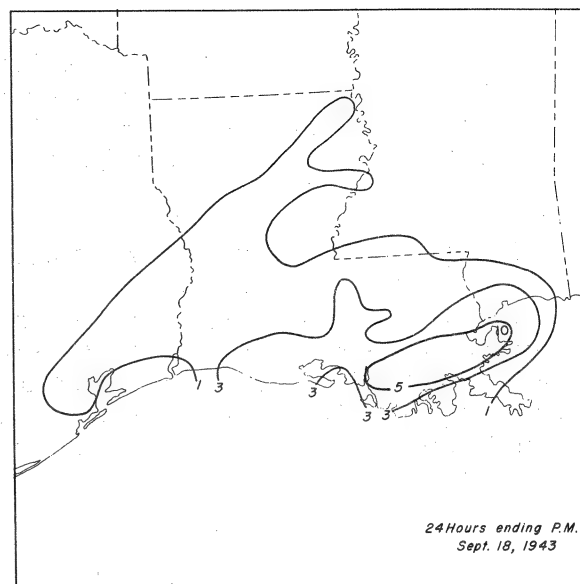
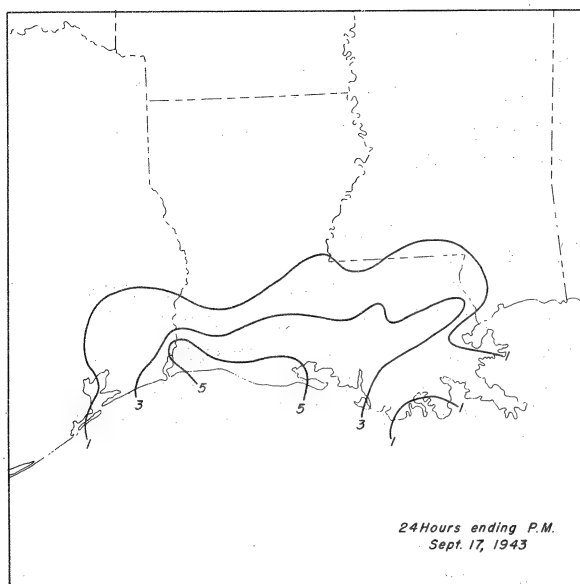
The storm of near-hurricane intensity that crossed the Louisiana coast during the night of September 19-20 was first observed in the west-central Gulf on the 15th. The disturbance moved north-northwestward until the 16th when its movement was blocked by a high-pressure area centered over the northern Plains States. The hurricane then made a cyclonic loop that was completed on the 17th and moved northeastward with diminished intensity, crossing the Louisiana coast on the 19th. After continuing inland a short distance, the disturbance dissipated over southern Louisiana by morning of the 20th.

Rainfall was heavy along the Louisiana coast, beginning at the western end on the 16th and increasing in intensity while spreading eastward, with moderate-to-heavy showers occurring well in advance of the hurricane. The heaviest rains occurred on the 18th, with the final moderate-to-heavy burst occurring to the right of the disturbance as it passed inland during the night of the 19th-20th.

Maximum Total-Storm Amount

Morgan City, La.: 19.0 in.





STORM OF OCTOBER 2-4, 1937

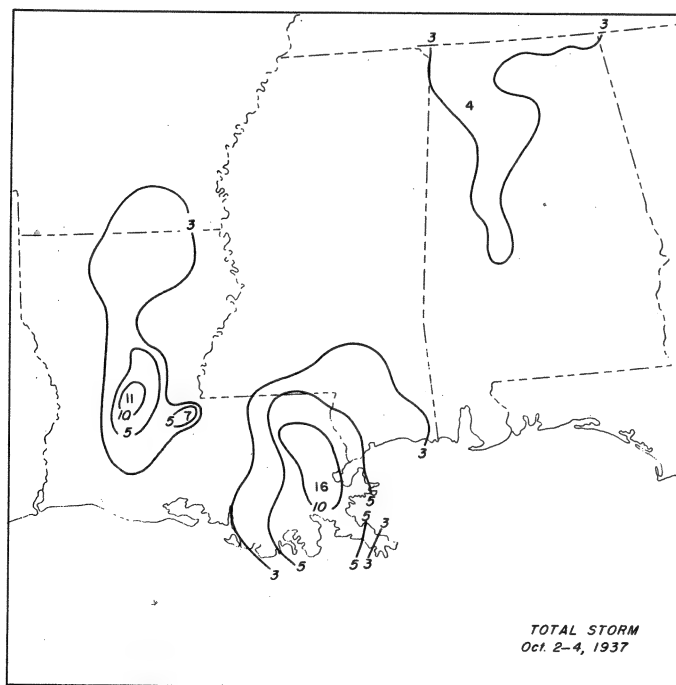
Meteorological Summary

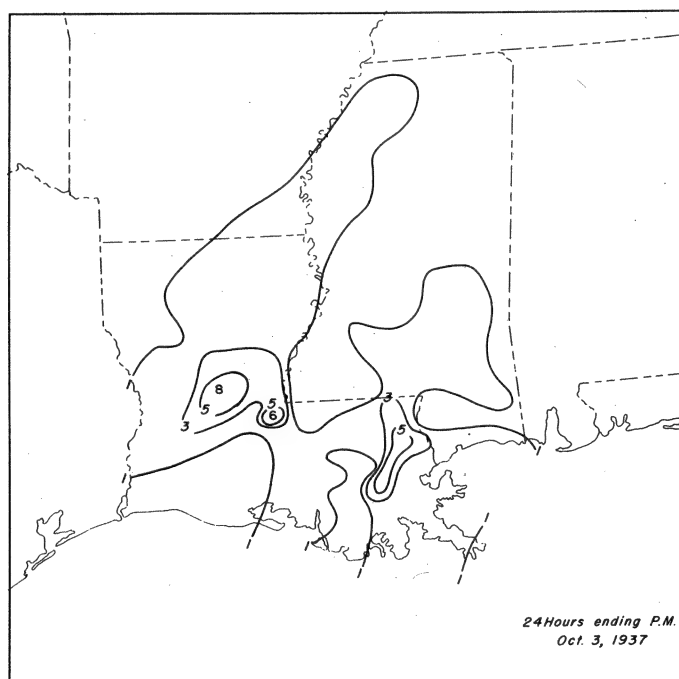
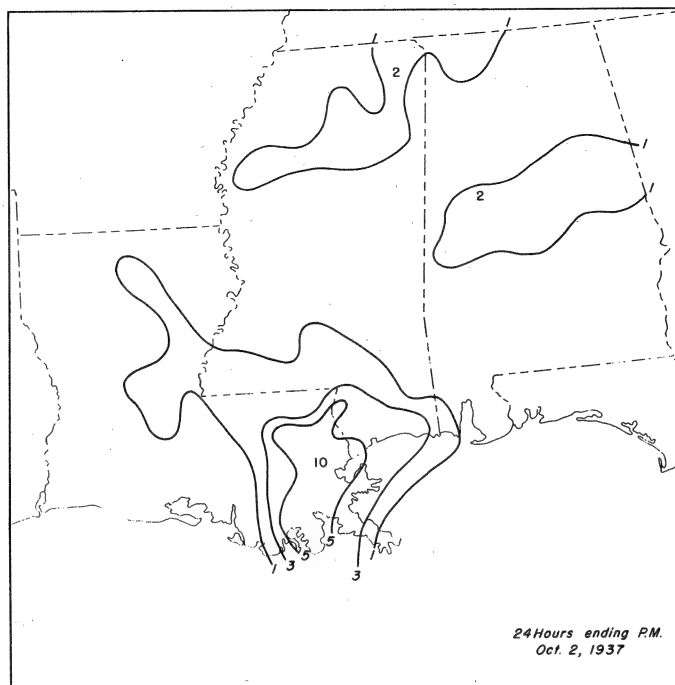
The weak tropical disturbance that entered the central Louisiana coast on October 2 was first detected over the northwestern Caribbean on September 30. It moved northwestward around the western edge of the Bermuda High and reached the Louisiana coast where it stagnated and lost its identity by October 3.

Rainfall was heavy in the immediate vicinity of the disturbance as it moved inland and dissipated on October 2 and October 3. Showers of moderate-to-locally-heavy intensity also occurred a considerable distance north of the disturbance as warm, moist, tropical air was lifted over a frontal surface that extended east-west from Virginia to Oklahoma. Since the heaviest general rains occurred in southern Louisiana, however, only that portion of the isohyetal pattern has been included.

Maximum Total-Storm Amount

Belle Chasse, La.: 16.2 in.





STORM OF JULY 15-17, 1931

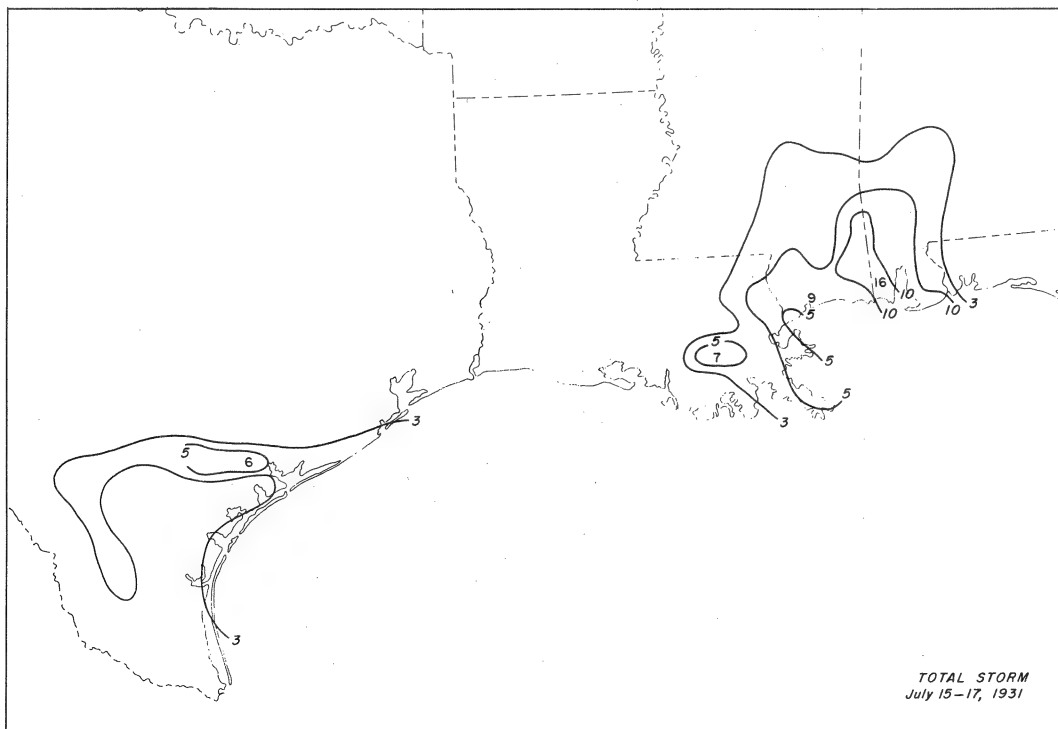
Meteorological Summary

The weak disturbance that entered the Louisiana coast on July 15 was first observed in the Caribbean on July 11. It moved northwestward across the Yucatan Peninsula, through the Gulf, and entered the Louisiana coast on July 15. It continued moving slowly northwestward and lost its identity over northwestern Louisiana on July 17.

The maximum rainfall, which was moderate to heavy to the right of the disturbance as it moved inland, occurred from afternoon of July 15 to afternoon of July 16. A secondary maximum occurred in Texas on July 16 as the result of a convergence zone that was set up as the northerly flow from the tropical disturbance joined with an existing southerly flow over the area of the maximum rainfall center. The total isohyetal map is used due to the short duration (24 hours) of both of these maxima.

Maximum Total-Storm Amount

Seven Hill, Ala.: 15.5 in.



STORM OF SEPTEMBER 4-6, 1933

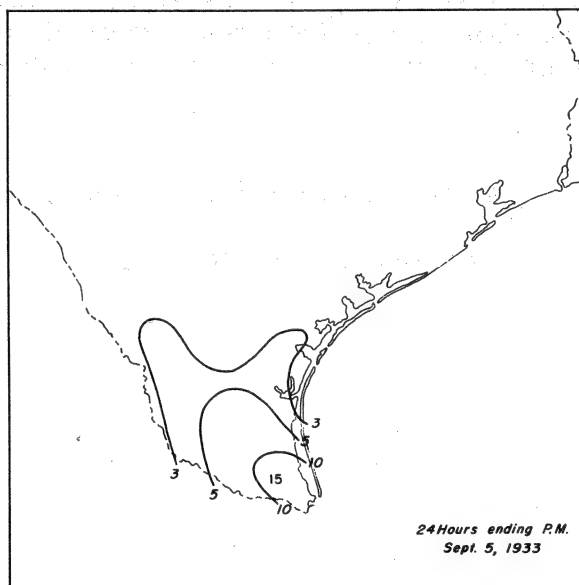
Meteorological Summary

The hurricane that entered the southern Texas coast north of Brownsville during the night of September 4 was first observed on August 28 at about 19° N and 55° W. Having passed Turks Island on August 30 and skirted the northern coast of Cuba on September 1, the hurricane moved across the Gulf and struck the southern Texas coast during the night of September 4.

Rainfall was heavy immediately ahead and to the right of the hurricane as it moved inland over southern Texas during the night of September 4 and the early morning hours of September 5.

Maximum Total-Storm Amount

Mercedes, Tex.: 15.0 in.



STORM OF SEPTEMBER 25-28, 1906

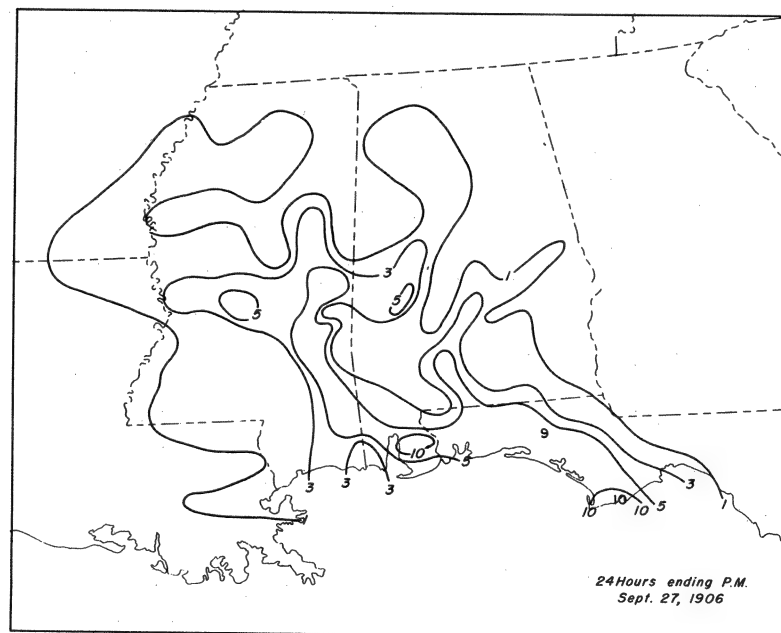
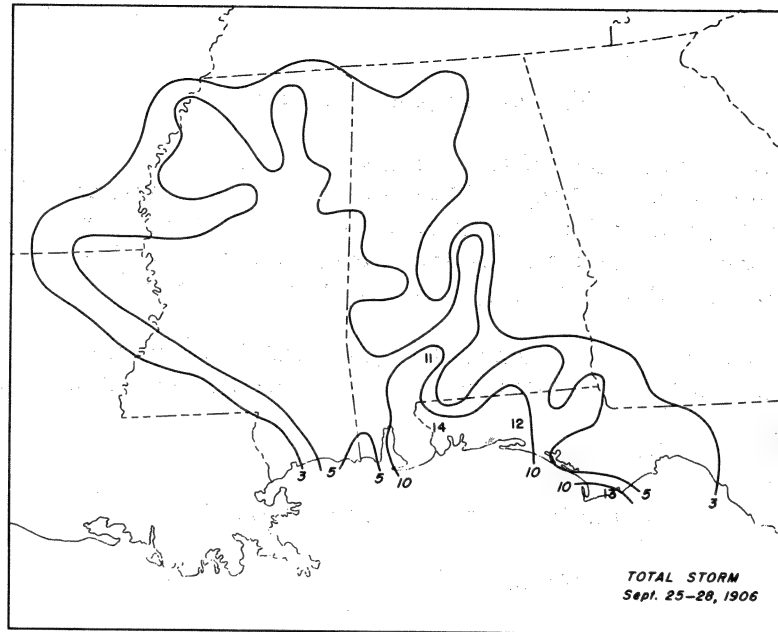
Meteorological Summary

The tropical disturbance that entered the Gulf Coast west of Mobile, Ala., on the morning of September 27 as a hurricane of severe intensity formed over the southern Caribbean on September 20. Its general movement was north-northwestward, crossing western Cuba, then deepening and moving rapidly through the eastern Gulf. Meteorological conditions over the United States indicated a flat pressure gradient over the Gulf Coast with a weak eastward-moving trough a considerable distance to the north and west of the Gulf Coast.

Rainfall was heavy along the Coast from Louisiana to western Florida, commencing as light rain during the night of September 26 and increasing to moderate-to-heavy rains on the following morning as the hurricane passed inland. Light rain continued to fall after the passage in the rear quadrants as the disturbance took on extratropical characteristics. Rains ceased along the Coast by afternoon of the 28th but continued moderate to heavy in the forward quadrants of the system as it moved up into the Mississippi Valley.

Maximum Total-Storm Amount

Molino, Fla.: 14.2 in.



STORM OF JULY 28-31, 1954 (Barbara)

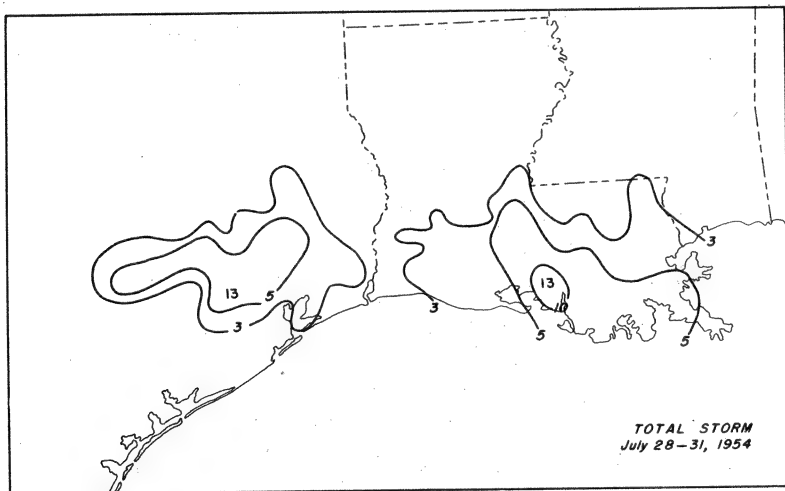
Meteorological Summary

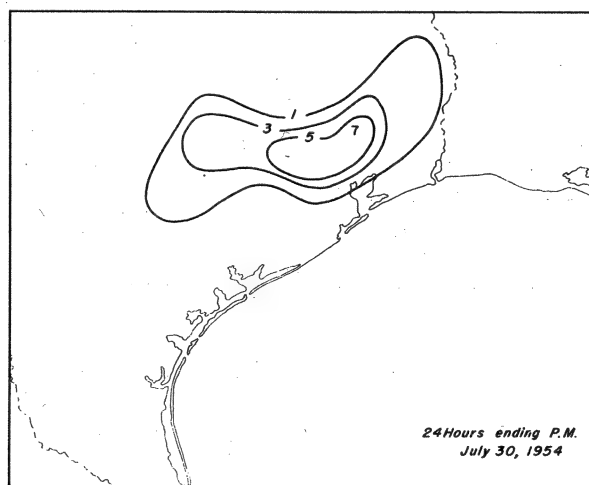
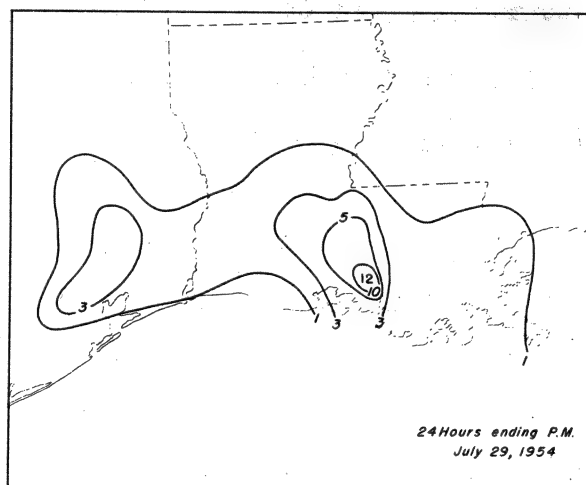
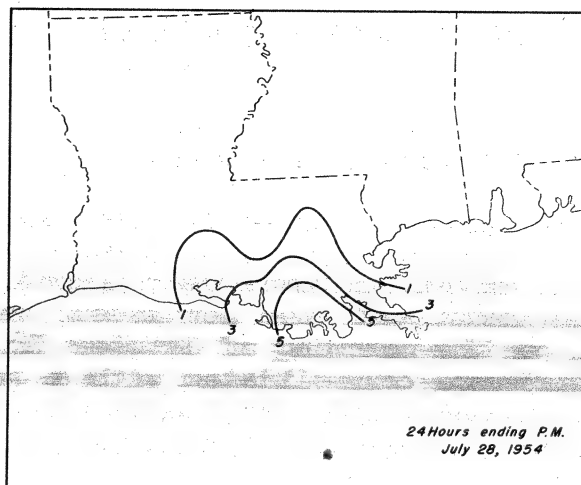
The tropical disturbance that crossed the Louisiana coast in the Vermilion Bay area west of Morgan City early on the morning of July 29 formed over the Gulf of Mexico off the Louisiana coast on the 28th. The disturbance moved northwestward, crossed the Louisiana coast on the 29th, and lost its identity over eastern Texas during the night of the 30th.

Rainfall was moderate to heavy in the immediate vicinity of the center as it entered the Louisiana coast on July 28 and moved to northeastern Texas.

Maximum Total-Storm Amount

Franklin, La.: 12.9 in.





STORM OF OCTOBER 17-18, 1916

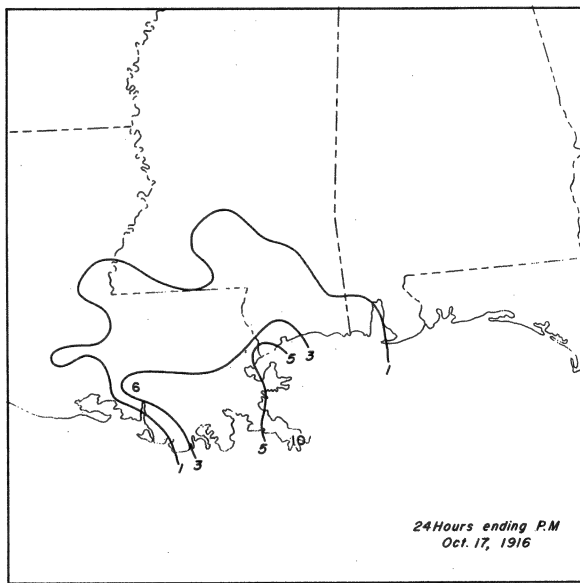
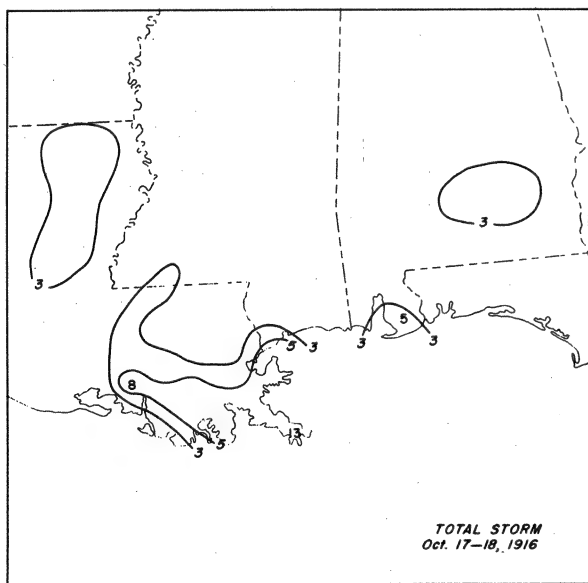
Meteorological Summary

The tropical disturbance that entered the Gulf Coast in the vicinity of Mobile, Ala., on October 18 was detected over the central Caribbean on October 13. It moved northwestward across the Yucatan Peninsula and curved sharply to the north and then northeast, reaching the Gulf Coast west of Mobile, Ala., on the morning of October 18. After crossing the Coast, the tropical disturbance consolidated with a quasi-stationary front that bounded the southwestern edge of a subtropical High centered over New York State. The new Low moved northward to southern Illinois by morning of October 19.

Rainfall was moderate to heavy before and as the tropical disturbance entered the coast, ending abruptly as the disturbance passed rapidly northward. Most of the rain along the coast occurred from early afternoon of October 17 to morning of October 18.

Maximum Total-Storm Amount

Burrwood, La.: 12.8 in.



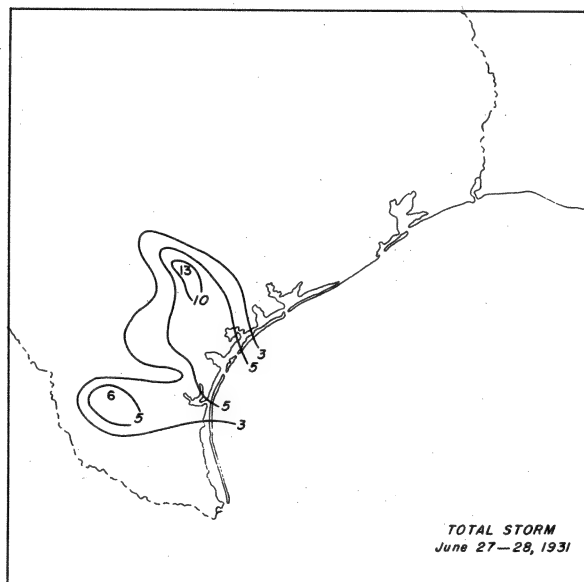
STORM OF JUNE 27-28, 1931

Meteorological Summary

The weak tropical disturbance that entered the Texas coast near Corpus Christi on the afternoon of June 27 was first observed over the Yucatan Peninsula on June 25. It drifted west-northwestward, following the flow around the western reaches of the Bermuda High and entered the southern coast of Texas on June 27, dissipating over this region by the morning of June 28.

Rainfall was moderate to heavy in the immediate vicinity of the disturbance as it moved inland. The period of maximum rainfall occurred from the morning of June 27 to the morning of June 28.

Maximum Total-Storm Amount
Runo, Tex.: 12.6 in.



STORM OF AUGUST 18-27, 1947

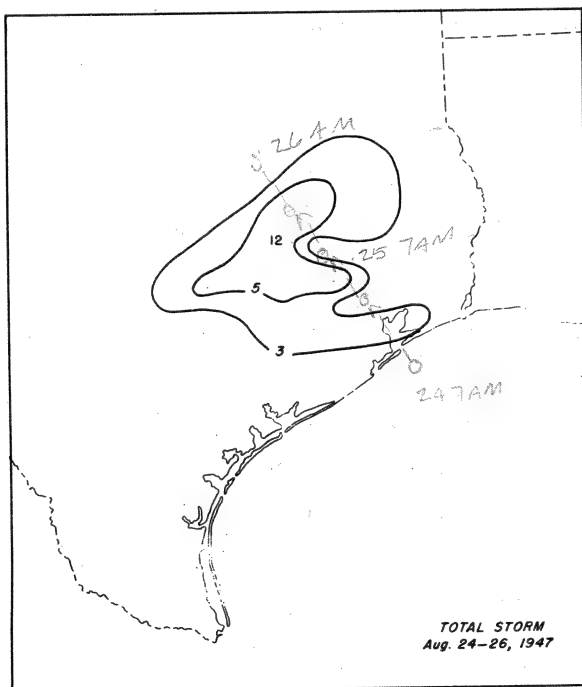
Meteorological Summary

The tropical disturbance that crossed the Texas coast near Galveston during the afternoon of August 24 was first observed as a cyclonic circulation 150 miles west-southwest of Key West, Fla. The Low moved slowly westward to the central Gulf of Mexico, where on the 21st it was so weak that its path could not be followed with certainty. The disturbance intensified and crossed the Texas coast on the 24th. It then moved slowly north-northwestward until the morning of the 27th when it dissipated.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it crossed the Texas coast. Rains continued light to moderate near the disturbance as it moved out of the region and dissipated on the 27th.

Maximum Total-Storm Amount

College Station, Tex.: 12.2 in.



STORM OF SEPTEMBER 4-6, 1949

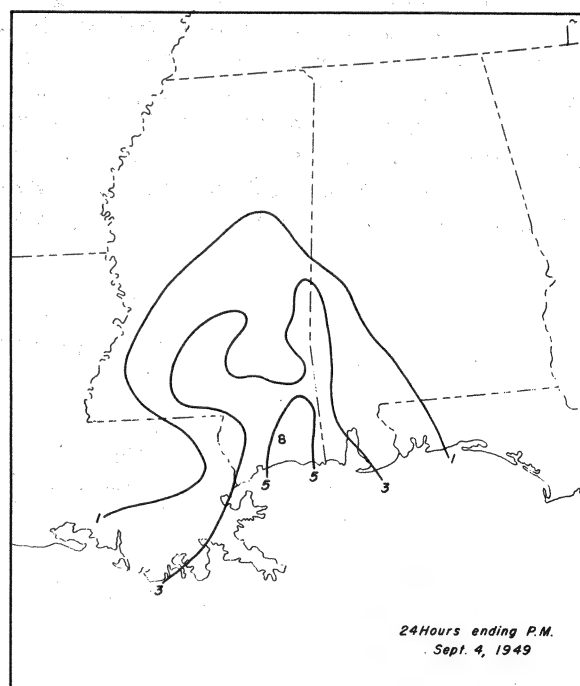
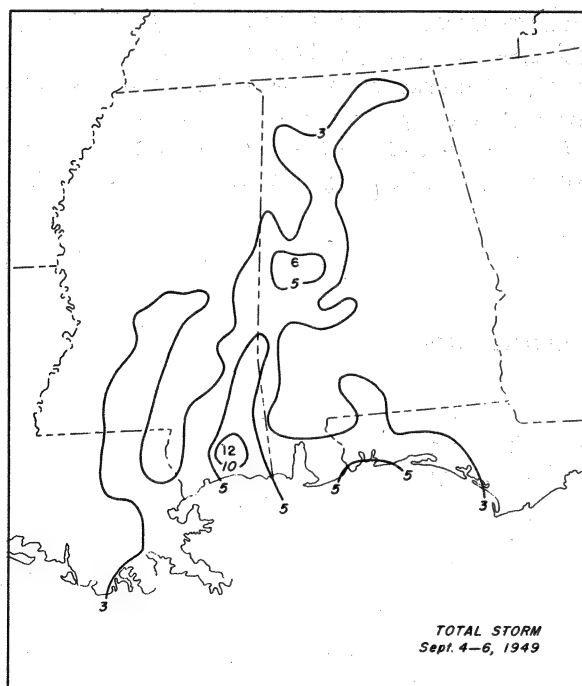
Meteorological Summary

The tropical disturbance that crossed the central Louisiana coast and then passed west of New Orleans on the morning of September 4 was first observed over the central Gulf on the night of September 3-4. The disturbance took a northerly course, crossed the central Louisiana coast on the morning of the 4th, and reached a point just east of Vicksburg, Miss., as a weak disturbance that night. It then continued slowly eastward and dissipated over northern Alabama on the morning of the 6th.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland, with rainfall amounts and intensities decreasing after the disturbance passed Vicksburg during the night of September 4-5.

Maximum Total-Storm Amount

McHenry, Miss.: 12.1 in.



STORM OF AUGUST 13-17, 1901*

Meteorological Summary

The moderately intense hurricane that entered the Gulf Coast between New Orleans and Port Eads, La., on the afternoon of August 14 was first observed north of Cuba on August 9. It moved across southern Florida and into the Gulf of Mexico on the morning of August 11 and continued westward until August 14, when it recurved at the 90th meridian. Meanwhile, a quasi-stationary front extending from southern North Carolina to central Mississippi took on warm front characteristics as the warm moist air from the tropical disturbance entered that zone. The warm front retreated northeastward as the hurricane moved inland. The disturbance deepened over southern Mississippi until August 16, when it accelerated northward and consolidated with a cold front, forming a new low-pressure system over Kentucky on August 17.

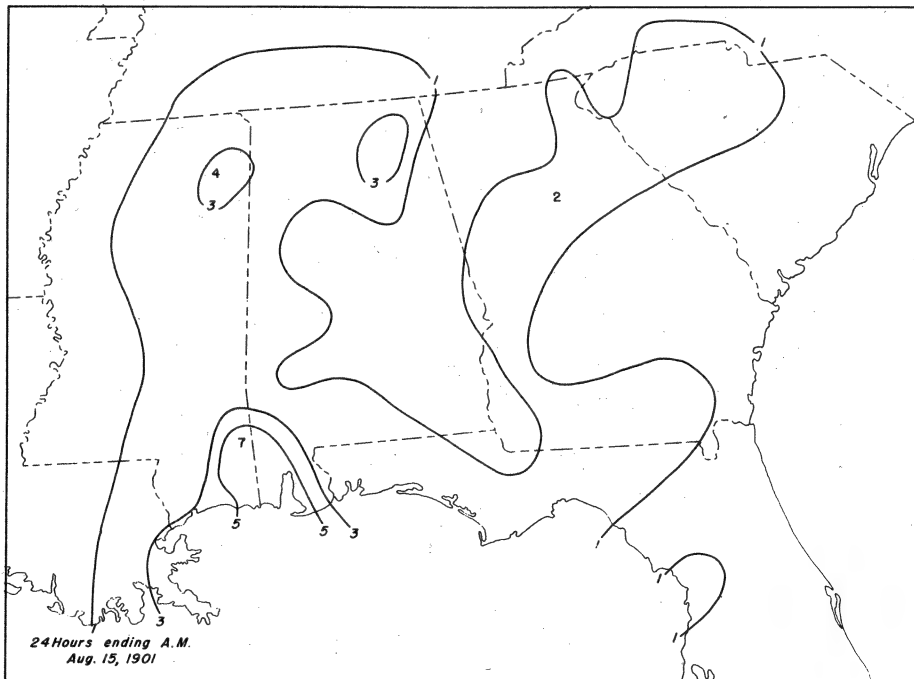
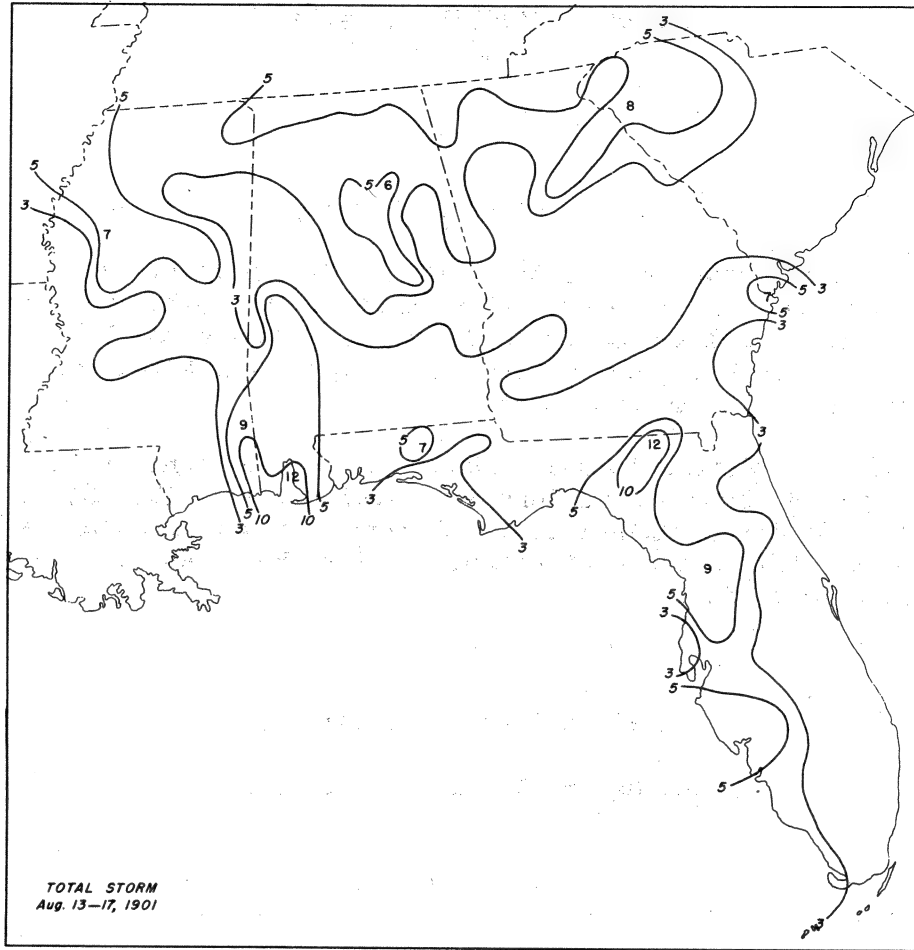
Rainfall was generally heavy throughout the Southeast during the period of the storm with one exception. When the disturbance passed through southern Florida on August 10 and August 11, the maximum amount was 3.00 inches at Everglades, Fla.

The total-storm isohyetal map indicates four maximum centers, only two of which were directly associated with the hurricane. The center over southwestern Alabama was the result of the passage inland of the hurricane; the center over central Mississippi and central Alabama resulted from stagnation of the hurricane on August 16; the center extending westward from South Carolina through Tennessee was the result of frontal rains on August 14; the center over north-central Florida was due to instability showers in the moist tropical air on August 16 and August 17.

Maximum Total-Storm Amount

Daphne, Ala.: 12.0 in.
Jasper, Fla.: 12.0 in.

*See page 254, South Atlantic Section



STORM OF OCTOBER 16-19, 1923

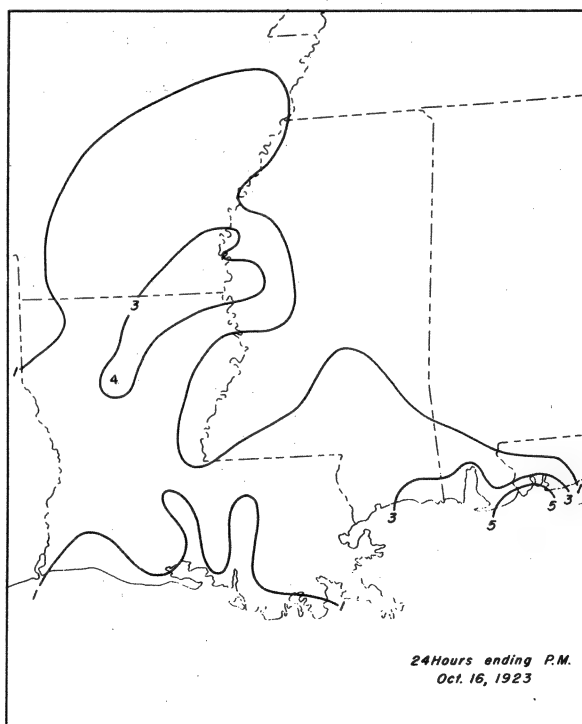
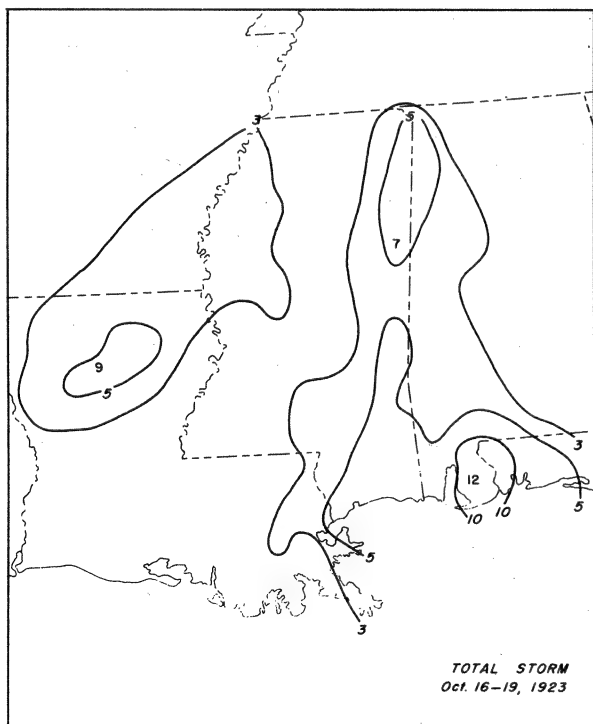
Meteorological Summary

The weak disturbance that entered the Louisiana coast early on October 16 formed over the Pacific coast of Guatemala on the 13th. The disturbance moved rapidly northward and early on October 16 crossed the Louisiana coast. By morning of the 16th it was centered near Vicksburg, Miss., and dissipated over southern Missouri the same night.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it passed through Louisiana and Mississippi on the 16th. Later on the same day a separate maximum occurred over northern Louisiana and southern Arkansas to the left of the disturbance as it weakened and developed extra-tropical characteristics.

Maximum Total-Storm Amount

Cottage Hill, Fla.: 12.1 in.



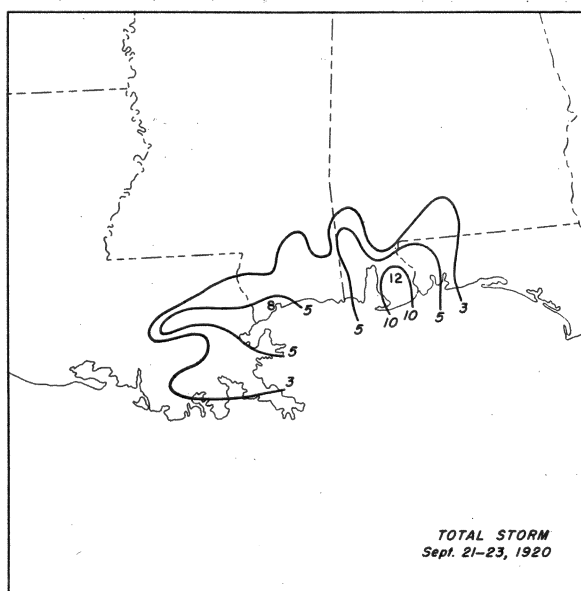
STORM OF SEPTEMBER 16-23, 1920

Meteorological Summary

The tropical disturbance that crossed the central Louisiana coast during the afternoon of September 21 was first observed in the south-central Caribbean on September 16. Moving northwestward, the disturbance passed over the Yucatan Peninsula on September 20 and continued across the Gulf of Mexico, skirting the western edge of a high-pressure system that was centered east of New England over the Atlantic Ocean. On September 21 the disturbance entered the Louisiana coast then dissipated over southern Arkansas on September 22.

Rainfall was generally light over the Gulf Coast from Texas to western Florida on September 21 ahead and to the right of the tropical disturbance as it moved inland. The heaviest amounts occurred during the period from afternoon of September 21 to early morning of September 23. Rainfall diminished rapidly as the disturbance moved inland and dissipated.

Maximum Total-Storm Amount
Robertsdale, Ala.: 11.9 in.



STORM OF OCTOBER 3-4, 1949

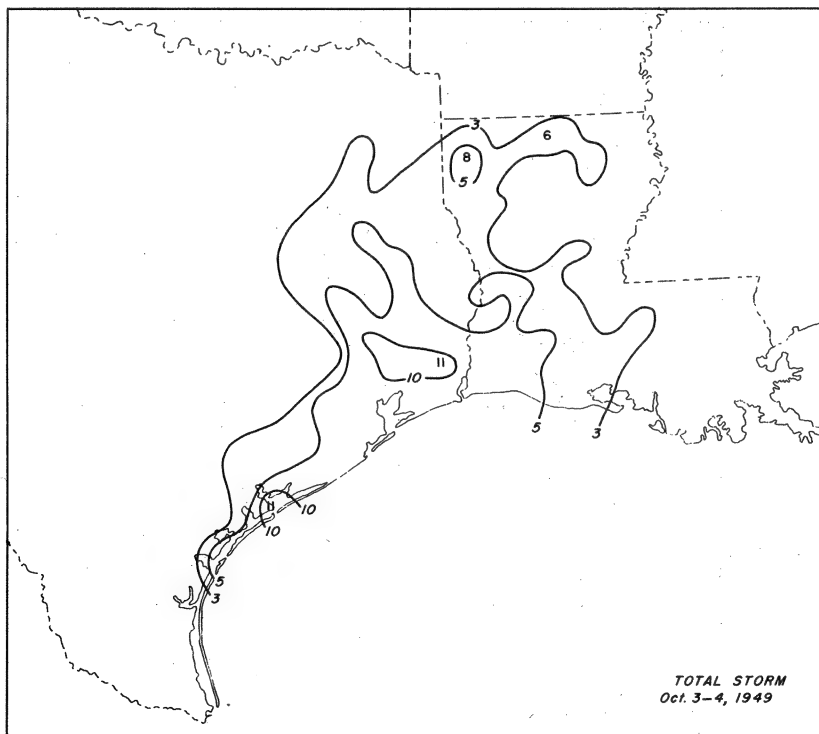
Meteorological Summary

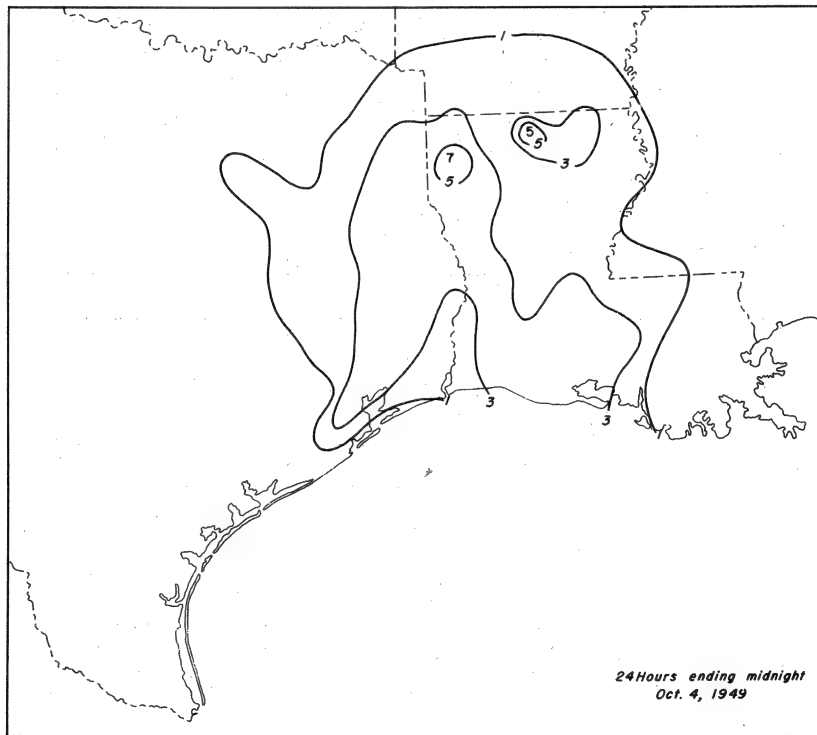
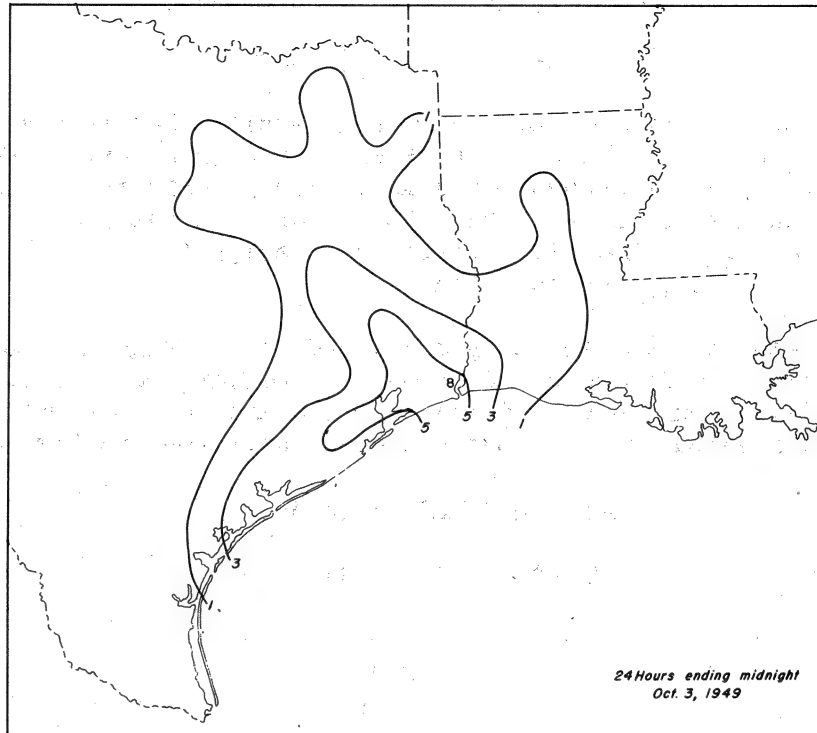
The hurricane that crossed the Texas coast near Freeport during the night of October 3-4, was first observed west of the Yucatan Peninsula on the 1st. The disturbance developed into a storm of hurricane intensity on the 2nd and moved north-northwestward until it crossed the Texas coast on the night of October 3-4. It then curved north-northeastward, weakening as it moved, and dissipated over the Great Lakes region during the night of October 6-7.

Rainfall was heavy along the Texas-Louisiana coast ahead and to the right of the hurricane as it moved inland, but rainfall amounts and intensities decreased rapidly as the disturbance passed through the area and weakened.

Maximum Total-Storm Amount

Beaumont, Tex.: 11.3 in.





STORM OF SEPTEMBER 24-27, 1939

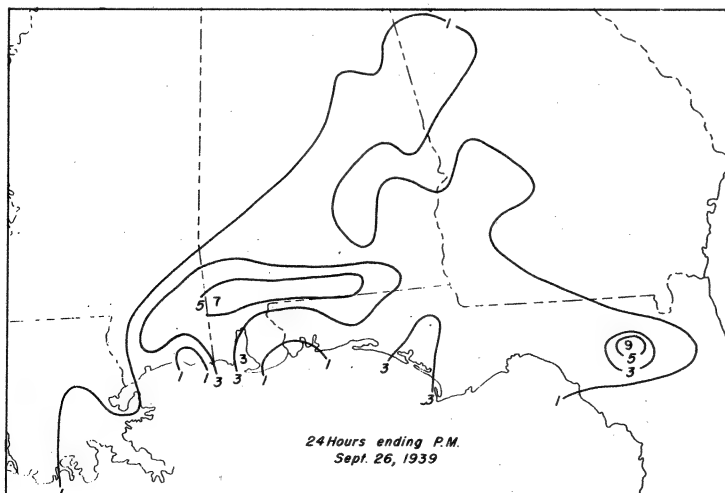
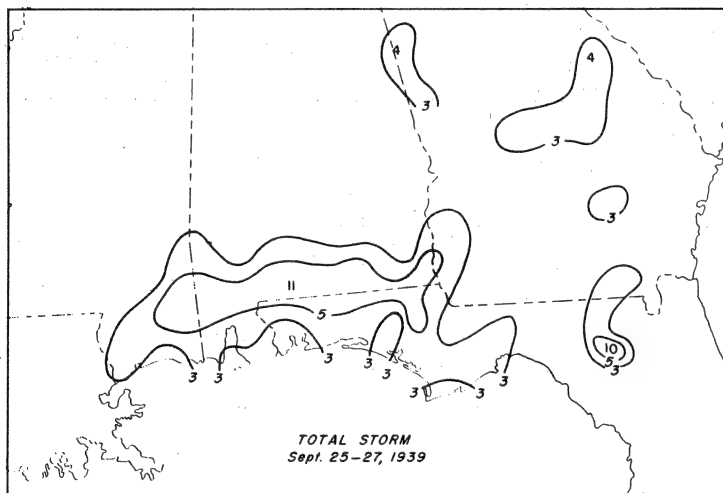
Meteorological Summary

The tropical disturbance of moderate intensity that entered the Louisiana coast south of New Orleans, a short distance west of Grand Isle, on the morning of September 26 was noted as a fairly definite cyclonic circulation on the 24th near 22°N and 92°W . It deepened slightly and then moved northward, entering the Louisiana coast and dissipating shortly thereafter over southern Mississippi on the 26th.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland on September 26; however, moderate-to-occasionally-heavy showers extended a considerable distance ahead and to the right of the disturbance as it dissipated over southern Mississippi on the 26th.

Maximum Total-Storm Amount

Brewton, Ala.: 11.3 in.



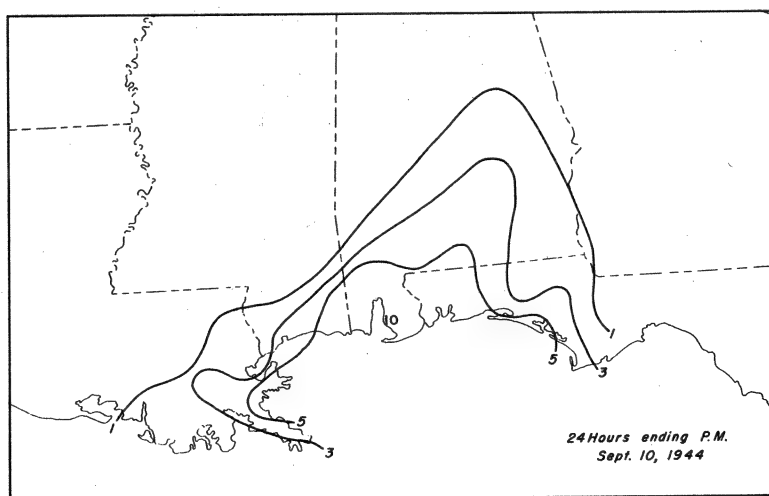
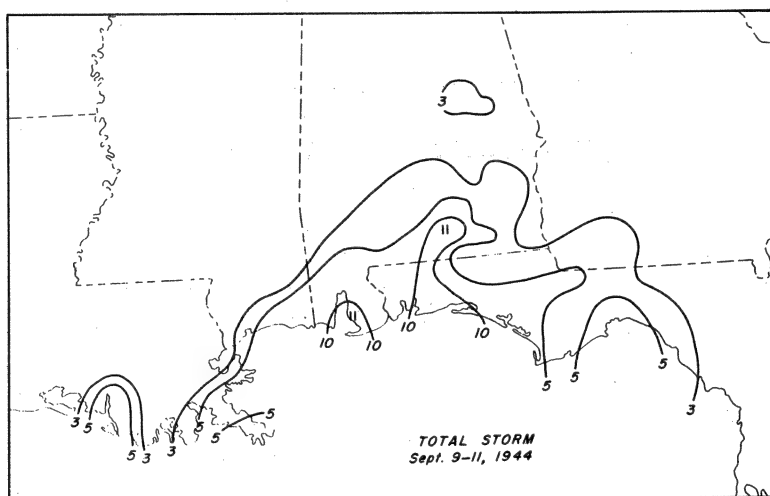
STORM OF SEPTEMBER 8-11, 1944

Meteorological Summary

The tropical disturbance that entered the Alabama coast east of Mobile during the afternoon of September 10 was first noted over the southwestern Gulf on the 8th. The disturbance moved north-northwestward until the 9th, when it curved to the northeast. Following the northeastward course, it skirted the southeastern coast of Louisiana and crossed the Alabama coast during the afternoon of the 10th. After moving inland the disturbance weakened rapidly and dissipated over southern Georgia by morning of the 11th.

Rainfall was heavy ahead and to the right of the disturbance as it moved inland and diminished rapidly as the disturbance moved further inland.

Maximum Total-Storm Amount
Andalusia, Ala.: 11.0 in.



STORM OF JULY 31-AUGUST 3, 1955 (Brenda)

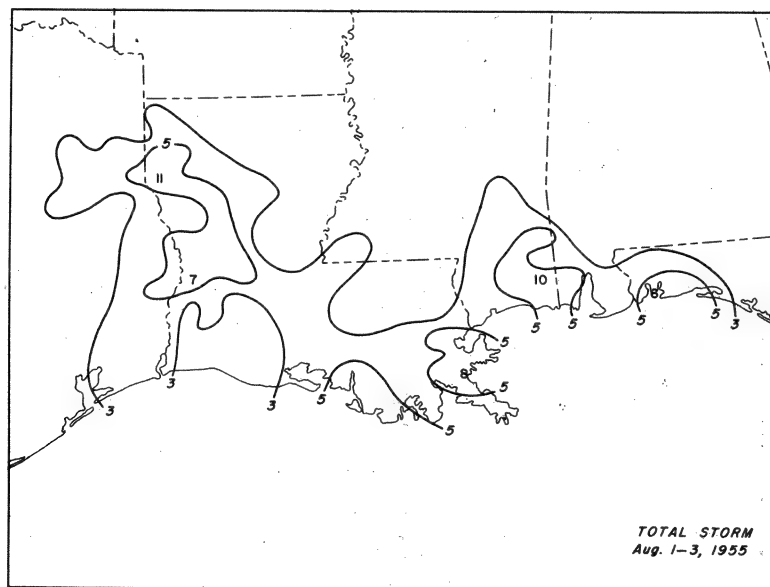
Meteorological Summary

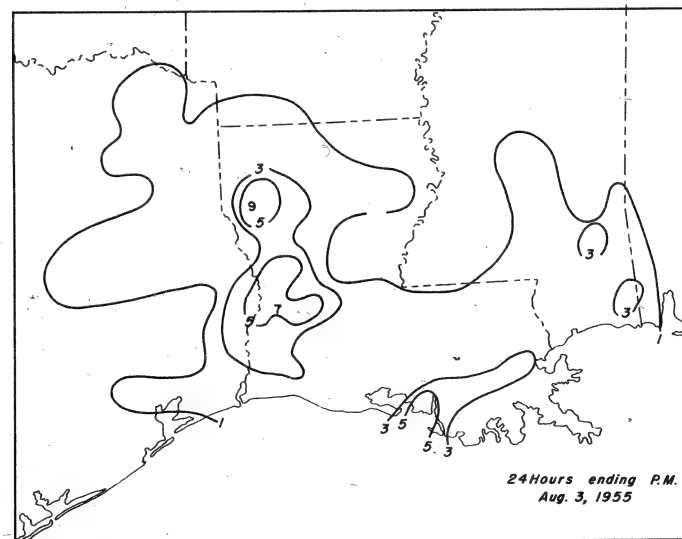
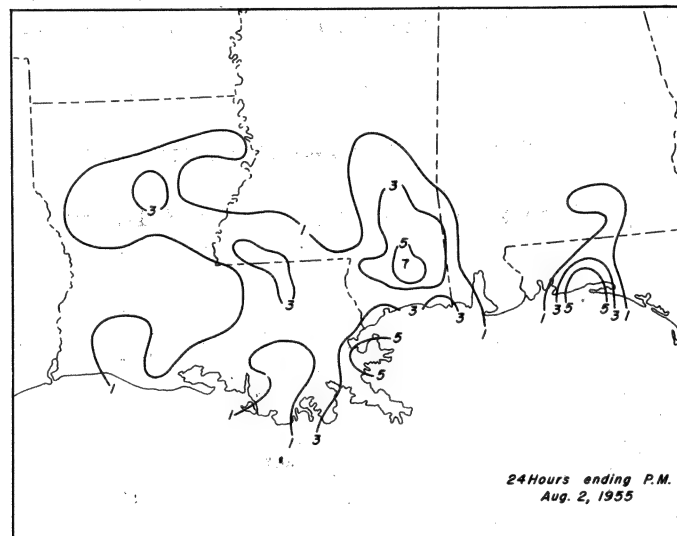
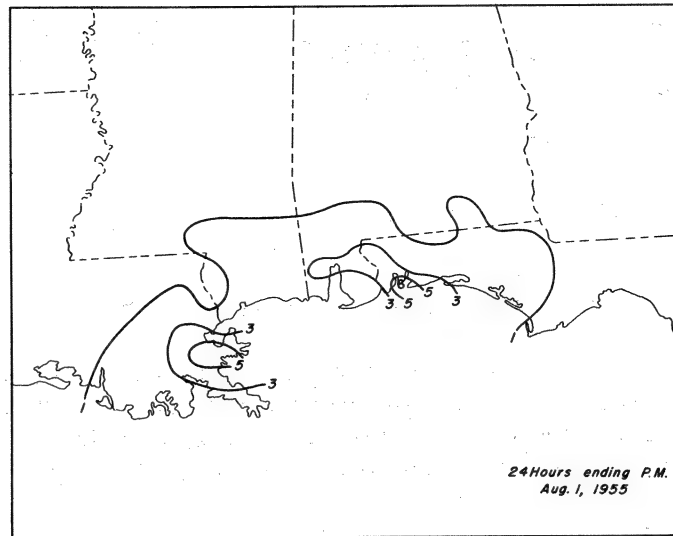
The tropical disturbance that crossed the Louisiana coast line east of New Orleans near Lake Ponchartrain on the afternoon of August 1 formed in the north-central Gulf of Mexico on July 31. After moving from the Gulf across the coast line, the disturbance curved to the west-northwest and dissipated over eastern Texas on August 2.

Rainfall was moderate to heavy in the forward quadrants of the hurricane as it entered the Louisiana coast on August 1. Moderate-to-heavy rains spread westward with the disturbance as it moved toward eastern Texas and dissipated on the 2nd.

Maximum Total-Storm Amount

Mansfield, La.: 10.8 in.





STORM OF SEPTEMBER 6-7, 1925

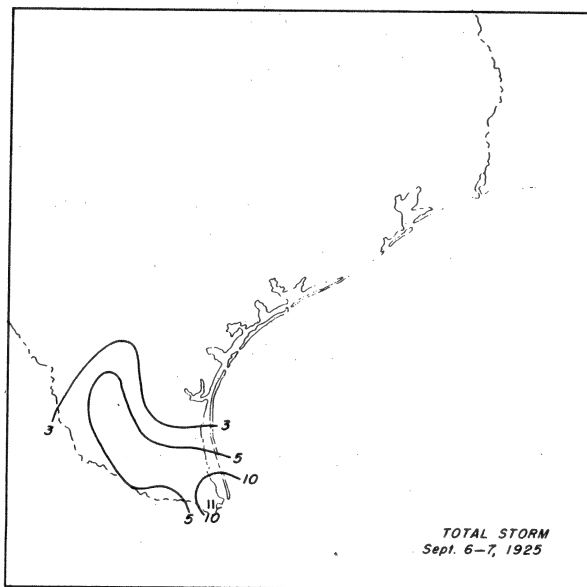
Meteorological Summary

The weak tropical disturbance that entered the Texas coast near Brownsville during the night of September 6 formed over the west-central Gulf of Mexico on September 6. It moved rapidly northwestward, entered the Texas coast, and continued northwestward, losing its identity by morning of September 7.

Rainfall was moderate to heavy for a short duration along the immediate path of the disturbance as it moved inland and dissipated.

Maximum Total-Storm Amount

Brownsville, Tex.: 10.7 in.



STORM OF SEPTEMBER 11-15, 1941

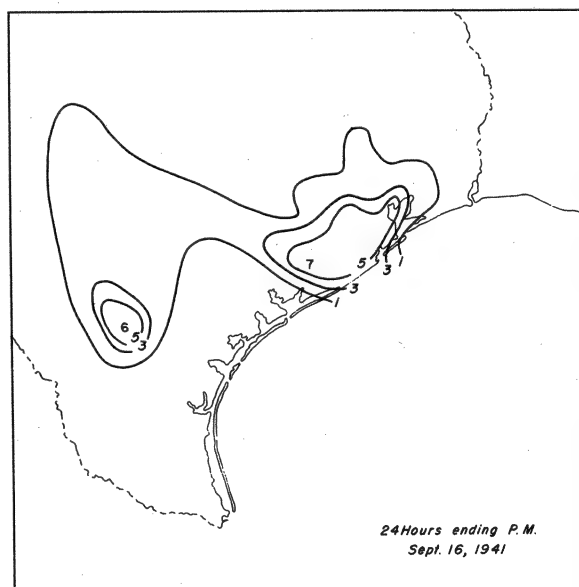
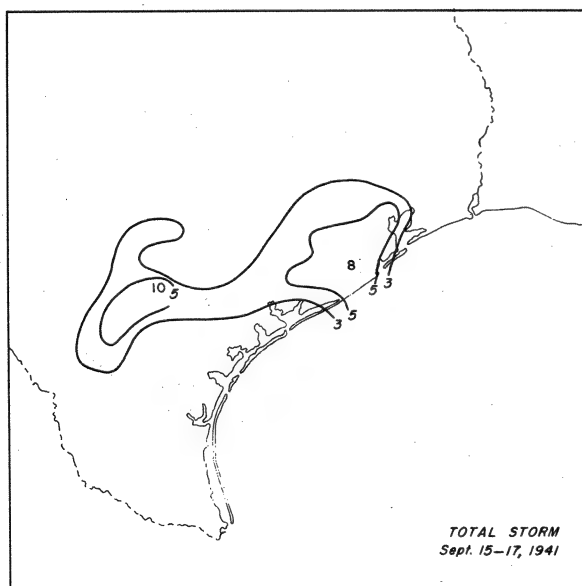
Meteorological Summary

The weak tropical disturbance that entered the Texas coast between Galveston and Port Arthur during the night of September 14-15 was first observed about 120 miles southeast of Port Eads, La., on the morning of the 11th. The disturbance moved very slowly west-northwestward toward southeastern Texas, crossing the coast during the night of the 14th-15th and dissipating a short distance inland.

Rainfall was light as the disturbance moved inland on the night of September 14-15; however, moderate showers began over the coast of southeastern Texas on the 16th and spread westward to south-central Texas on the 17th in the warm moist air that remained over that region from the dissipated tropical disturbance.

Maximum Total-Storm Amount

Karnes City, Tex.: 10.2 in.



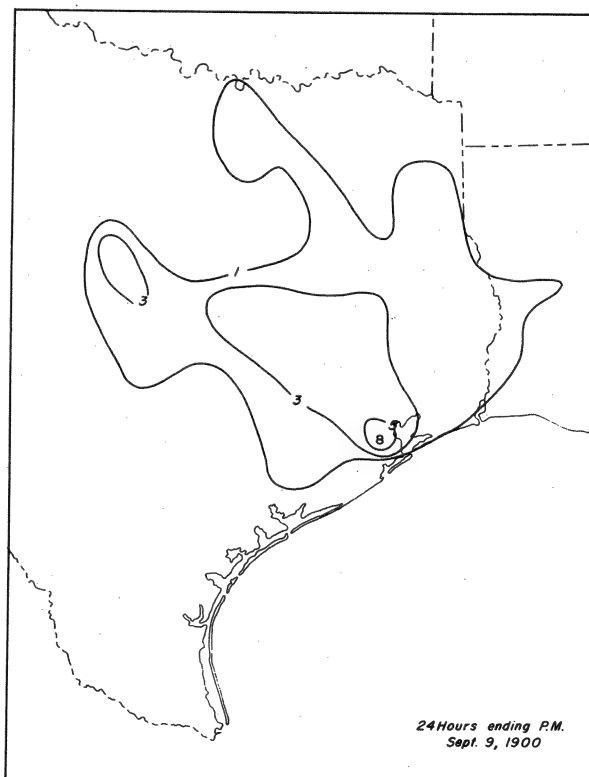
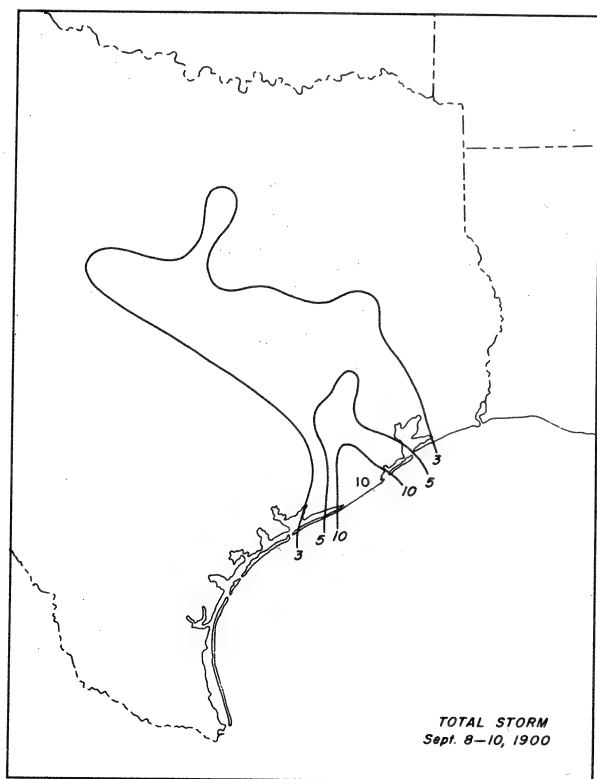
STORM OF SEPTEMBER 8-10, 1900 *

Meteorological Summary

The severe hurricane that entered the Galveston Bay area during the night of September 8 was first observed in the central Caribbean on September 2. It moved northward across Cuba, skirted the Florida west coast, and curved abruptly to the west-northwest just south of Tampa, Fla., on September 6. Rainfall was light to moderate in southern Florida, occurring ahead and to the right of the disturbance as it passed the area. The hurricane then moved parallel to the Gulf Coast accompanied by light-to-occasionally-moderate rains along the fringe of the coast. At about 9 p.m. on September 8 the hurricane then moved inland over Galveston Island, Tex., spreading heavy rains immediately ahead and to the right as it moved inland. Rainfall diminished rapidly to the rear of the disturbance as it progressed inland and recurved toward the north. On September 10 the disturbance finally consolidated with an extratropical Low over Kansas and moved rapidly eastward.

Maximum Total-Storm Amount

Brazoria, Tex.: 10.1 in.



*See page 248, South Atlantic Section

STORM OF JUNE 22-23, 1921

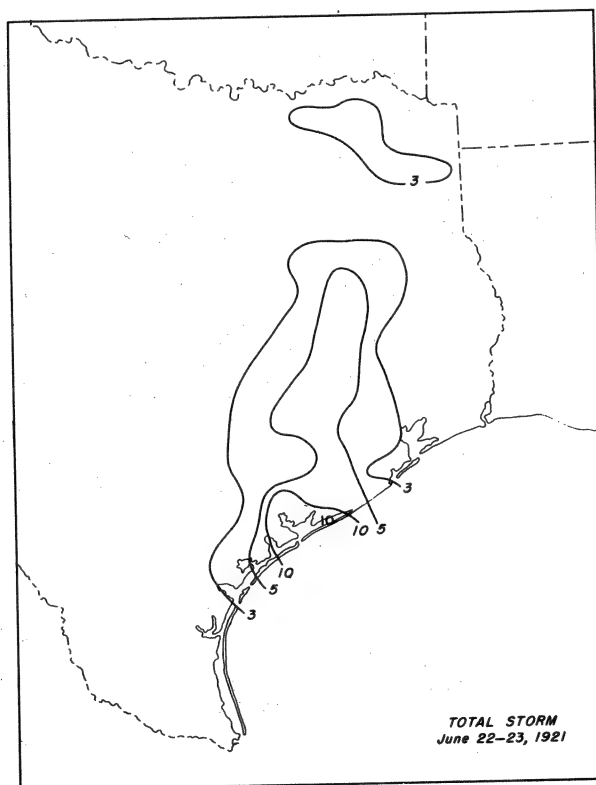
Meteorological Summary

The tropical storm that entered the Gulf Coast between Houston, Tex., and Corpus Christi, Tex., on June 22 was first observed over the southwestern Gulf of Mexico on June 17. Moving almost due north through an area of weak pressure gradient, the disturbance passed inland on the afternoon of June 22 between Houston and Corpus Christi, Tex. The disturbance continued its northward movement and dissipated over southwestern Missouri on June 24.

Rainfall was heavy along the immediate path of the tropical disturbance as it moved inland on June 22 and diminished rapidly after the disturbance moved northward with only light-to-moderate showers accompanying the disturbance along its movement towards Missouri.

Maximum Total-Storm Amount

Matagorda, Tex.: 10.0 in.



STORM OF SEPTEMBER 23-24, 1940

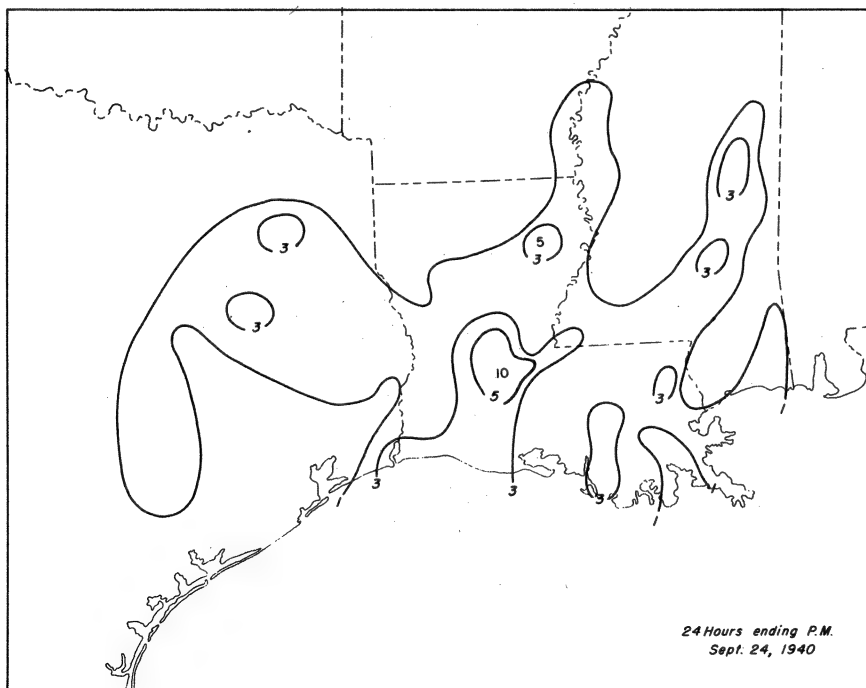
Meteorological Summary

The weak tropical disturbance that entered the Louisiana coast west of Lafayette during early morning of September 24 was first noted in the vicinity of Bluefields, Nicaragua, on the 19th. The disturbance moved northwestward, passing over Nicaragua and then the Yucatan Peninsula into the southern Gulf of Mexico by afternoon of the 21st. It continued its northwestward path until the 23rd, when it curved abruptly to the northeast and crossed the coast of southwestern Louisiana on the 24th. It then diminished in intensity and continued northeastward into a low-pressure trough which dominated the south-central and eastern portions of the United States during afternoon of the 24th.

Rainfall associated with this disturbance was moderate to heavy ahead and to the right of the center as it moved inland on September 24 but diminished rapidly as the weakened disturbance moved northeastward.

Maximum Total-Storm Amount

Ville Platte, La.: 10.0 in.



STORM OF SEPTEMBER 13-16, 1912

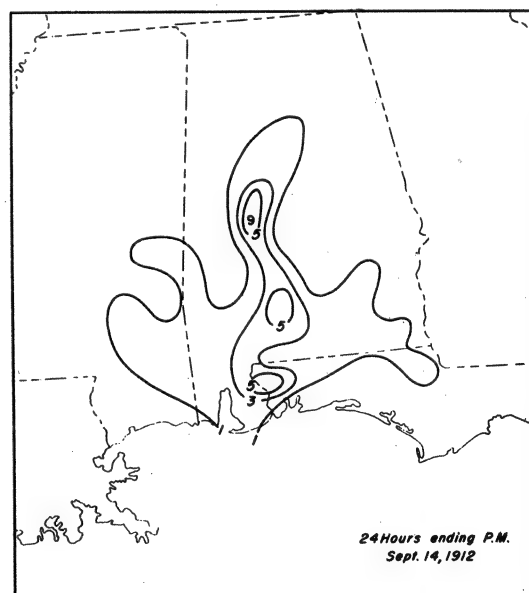
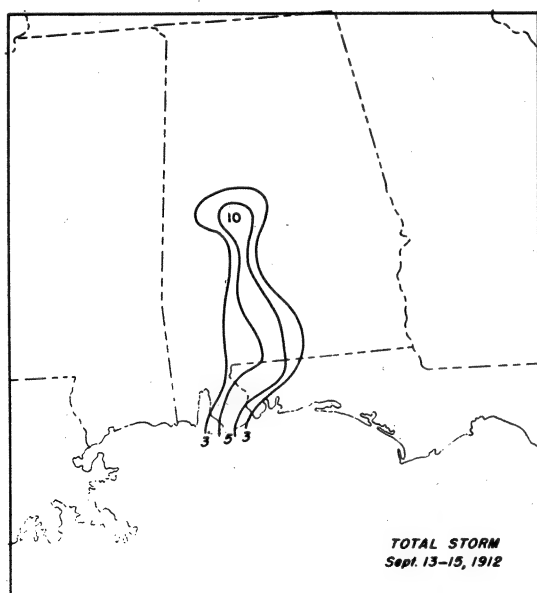
Meteorological Summary

The tropical disturbance that entered the Gulf Coast about 20 miles east of Mobile, Ala., on the night of September 13-14 was noted over the eastern Gulf on the 9th. The disturbance moved slowly northwestward, crossed the Alabama coast, and began to curve toward the northeast on the 14th. Passing west of the Appalachians, the disturbance then curved eastward on the 15th, traversing southern Pennsylvania and southern New England before moving out into the Atlantic on the morning of the 16th.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland on the night of September 13-14. Amounts diminished but remained moderate throughout the course of the storm, with general showers occurring in all quadrants of the disturbance as it passed west of the Appalachians and through Pennsylvania and southern New England on the 15th and 16th. Rainfall amounts in the North Atlantic Region were generally below an inch with a few higher amounts.*

Maximum Total-Storm Amount

Newbern, Ala.: 10.0 in.



*See page 293, North Atlantic Section

STORM OF AUGUST 18-23, 1942

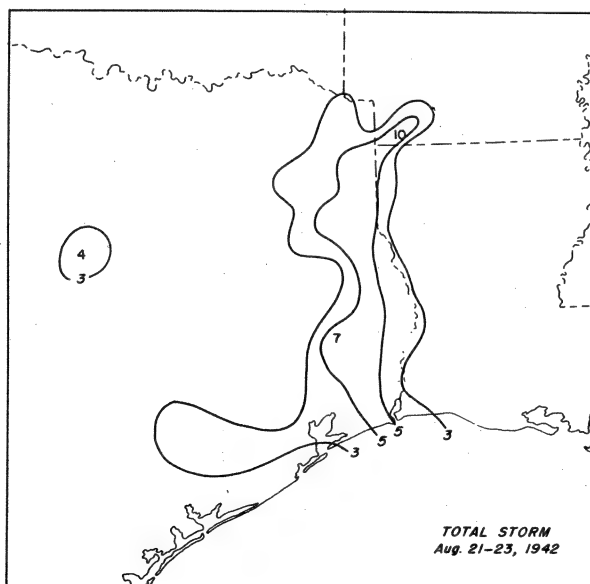
Meteorological Summary

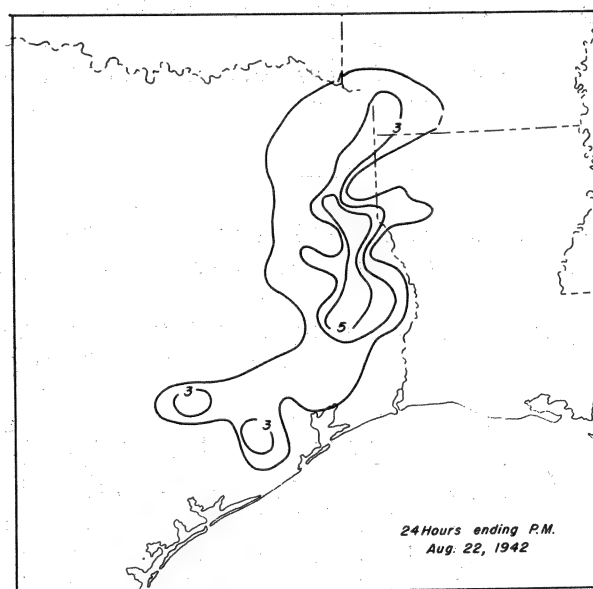
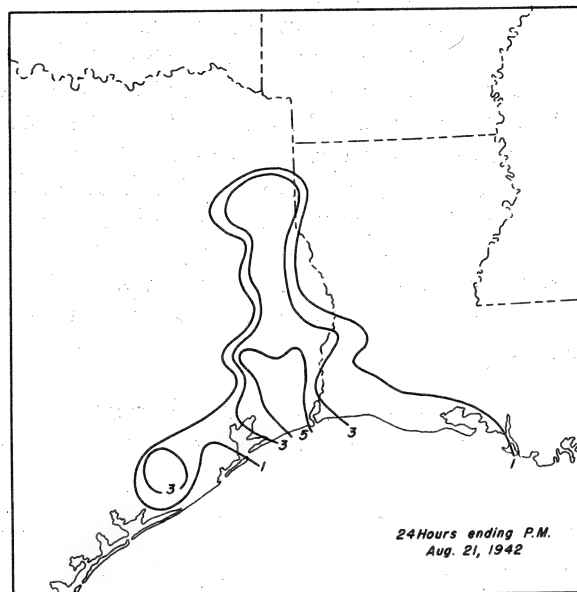
The storm of near-hurricane intensity that passed inland over the Bolivar Peninsula near Gilchrist, Tex., on the morning of August 21 was observed in the northwestern Caribbean on August 17. The disturbance moved west-northwestward toward the Texas coast, giving few advance indications of its position due to its small diameter, and crossed the coast of eastern Texas on the morning of the 21st. The disturbance then curved northward and moved slowly toward Palestine, Tex., on the morning of the 22nd, recurved northeastward, and finally dissipated over southwestern Missouri during the night of the 22nd.

Rainfall was moderate ahead and to the right of the disturbance as it moved inland on August 21 and continued moderate to heavy over northeastern Texas as the disturbance moved through that area during the night of the 21st and morning of the 22nd; however, rainfall amounts and intensities decreased rapidly after the disturbance passed Palestine, Tex., on the morning of the 22nd, when the disturbance began to dissipate rapidly.

Maximum Total-Storm Amount

Springbank, Ark.: 9.8 in.





STORM OF JUNE 12-17, 1934

Meteorological Summary

The severe hurricane that entered the Louisiana coast a short distance west of Morgan City, La., at 2 p.m. on June 16 was detected in the Gulf of Honduras on the afternoon of the 8th, crossed the Yucatan Peninsula, and moved into the southwestern Gulf of Mexico on the 9th. During the next two days it moved northwestward, but on the 12th it made a complete loop in the southwestern Gulf and began to move slowly north-northeastward toward the Louisiana coast. The disturbance crossed the Louisiana coast on June 16, then slowly decreased in intensity as it moved northeastward through the Middle Atlantic States and passed over New Jersey out to sea on the afternoon of the 19th.

Rainfall was moderate to heavy in Louisiana and Mississippi along the path of the disturbance as it moved inland from the afternoon of June 16 to the afternoon of the 17th.

Maximum Total-Storm Amount
Lafayette, La.: 9.6 in.

Another storm occurred over northern Florida during the period of this hurricane from June 12 to June 16 and is included in this discussion. The rainfall in this storm was the result of thunderstorm activity associated with wave action along a quasi-stationary front in southern Georgia and northern Florida. Southeasterly and southerly winds maintained a constant flow of moist, unstable, tropical maritime air from the Atlantic and the Gulf of Mexico into the area. Since the tropical disturbance was controlling the flow over the Gulf region, this added factor may have influenced the over-all rainfall picture in northern Florida.

Rainfall Data*

Maximum Total-Storm Amount

St. Leo, Fla.: 20.9 in. midnight, October 12, to 6 p.m., October 16

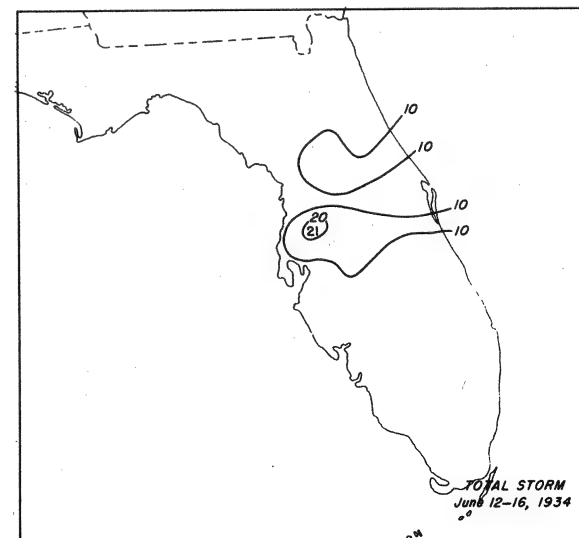
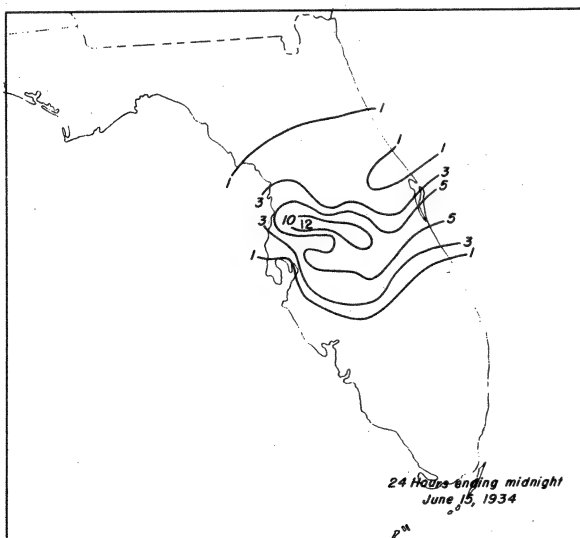
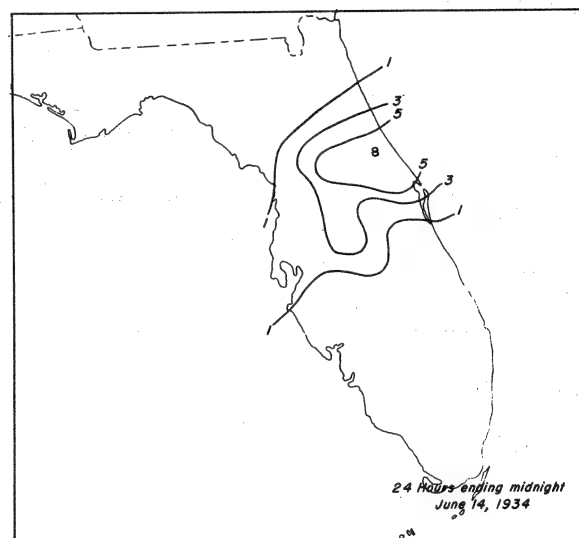
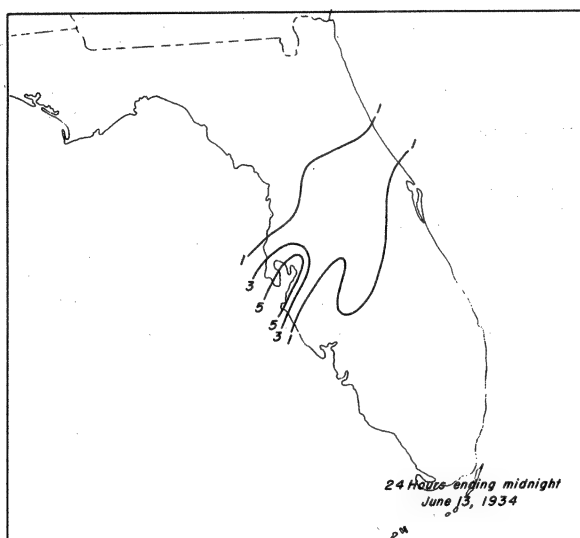
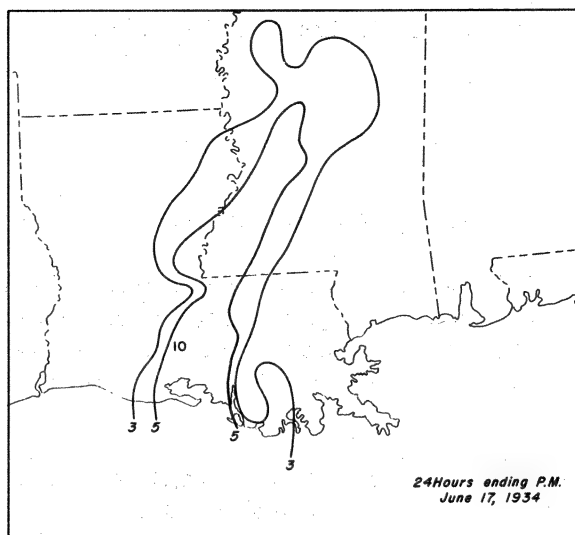
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	120
10	5.8	9.4	12.6	14.2	14.9	15.0	15.5	16.2	19.0	20.9	20.9
100	4.9	8.9	12.0	12.7	13.2	13.4	14.2	14.8	18.0	19.7	19.7
200	4.6	8.6	11.5	12.1	12.5	12.8	13.6	14.2	17.4	19.0	19.1
500	4.1	8.0	10.3	11.0	11.5	11.8	12.5	13.1	16.2	17.7	17.8
1,000	3.6	7.2	9.1	9.9	10.6	10.9	11.5	12.1	15.1	16.4	16.5
2,000	3.1	6.2	7.8	8.8	9.5	9.9	10.4	11.1	13.8	14.9	15.1
5,000	2.3	4.7	6.0	7.0	7.9	8.4	9.0	9.6	11.8	12.8	13.1
10,000	1.7	3.4	4.6	5.6	6.6	7.2	7.8	8.5	10.2	11.1	11.4
20,000	1.1	2.1	3.1	4.2	5.4	6.0	6.6	7.3	8.7	9.4	9.8

*Storm Rainfall in the U. S., SA 5-1, C. of E., U. S. Army



STORM OF AUGUST 12-15, 1932

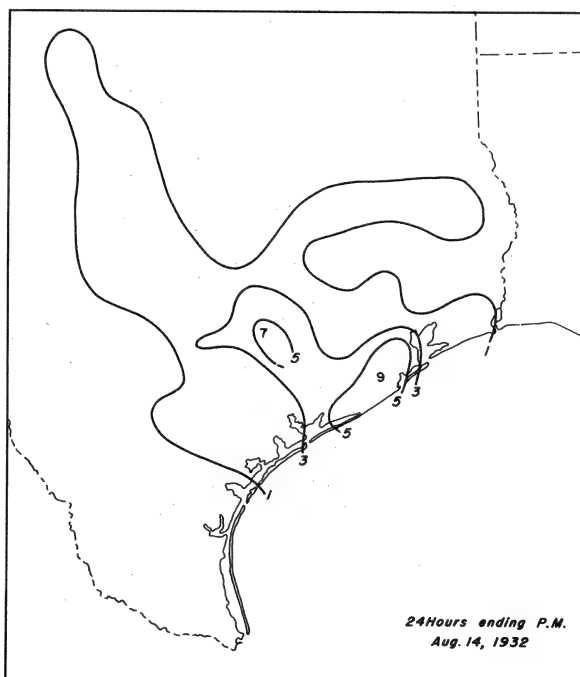
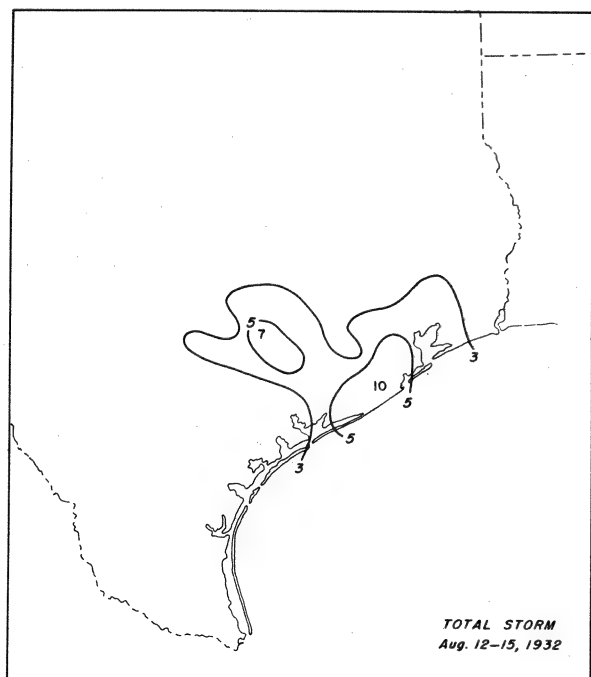
Meteorological Summary

The hurricane that entered the Texas coast near Freeport during the night of August 13 was observed in approximately the south-central Gulf of Mexico on the 12th. The disturbance moved rapidly northwestward, crossed the coast of eastern Texas, and dissipated over north-central Texas the night of the 14th-15th.

Rainfall was heavy along the coast and southern sections of Texas to the right of the disturbance as it moved inland during the night of August 13. General showers occurred over most of Texas in the moist, tropical air on the 14th.

Maximum Total-Storm Amount

Angleton, Tex.: 9.9 in.



STORM OF AUGUST 9-14, 1911

Meteorological Summary

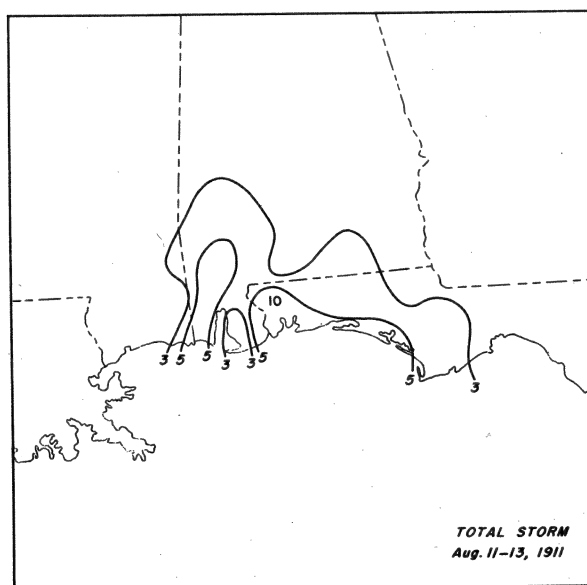
The tropical disturbance that crossed the Florida coast west of Pensacola during the evening of August 11 developed near the Florida Straits. Moving northeastward, the disturbance crossed the western Florida coast on the night of the 11th-12th and dissipated over central Missouri on the 14th.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it crossed the Florida coast and spread to all quadrants of the weakening storm as it moved westward and dissipated. The 24-hour maxima were as follows:

Pensacola, Fla.:	3.7 in. on August 11
Donaldsonville, La.:	6.2 in. on August 12
Burnside, La.:	4.0 in. on August 13
Greenville, Miss.:	4.6 in. on August 13

Maximum Total-Storm Amount

Molino, Fla.: 10.0 in.



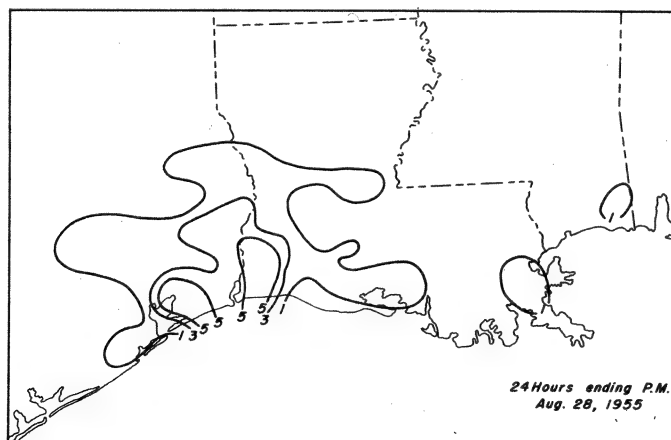
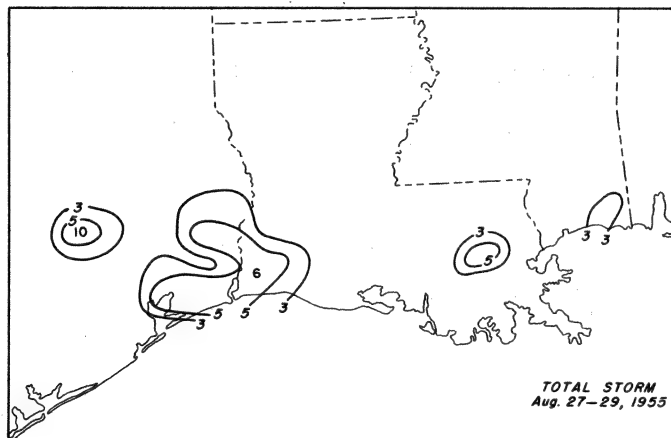
STORM OF AUGUST 23-29, 1955

Meteorological Summary

The weak tropical disturbance that entered the Louisiana coast near Lake Pontchartrain at 2 a.m. on August 27 was first observed near Grand Cayman on the 23rd. The disturbance moved on a northwestward course, gaining intensity very slowly, and crossed the Louisiana coast on the 27th. After moving inland near New Orleans, the disturbance moved westward until the 28th when it curved to the north-northeast and finally lost its identity over southern Illinois on the night of the 29th-30th.

Rainfall was light near the disturbance as it moved inland with only light-to-moderate showers occurring near the disturbance as it crossed the coast. However after the disturbance had moved west, an area of moderate-to-heavy showers occurred in the warm, moist, tropical air over the eastern coastal region of Texas on August 28.

Maximum Total-Storm Amount
Anderson, Tex.: 9.5 in.



STORM OF AUGUST 28-30, 1942

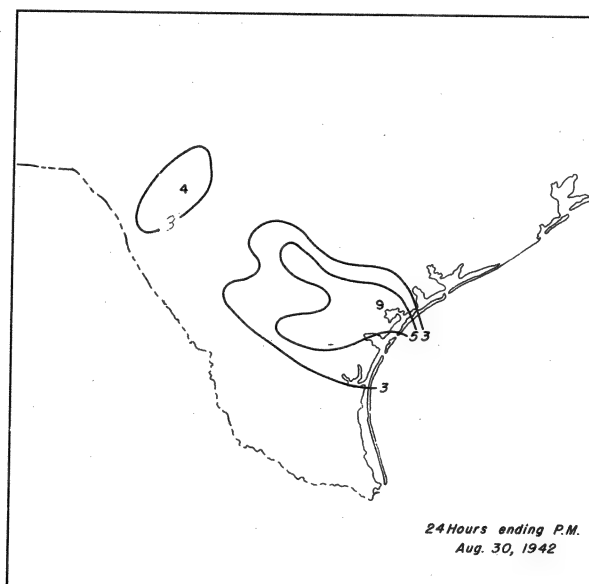
Meteorological Summary

The severe hurricane that swept inland over the Matagorda Bay area of Texas early on the morning of August 30 was first observed as a weak tropical disturbance south of Jamaica, B.W.I., on August 24. The disturbance moved west-northwestward, crossed the tip of the Yucatan Peninsula, and curved to the northwest as it passed into the Gulf of Mexico. It continued northwestward in almost a straight line as a hurricane of severe intensity and reached the Texas coast early on the morning of August 30. It crossed the coast and dissipated in the highland regions of southern Texas by evening of the 30th.

Rainfall was moderate to heavy over a small area to the left of the center as it crossed the coast and dissipated. This was one of the very few Texas hurricanes in which the maximum rain fell to the left of the center.

Maximum Total-Storm Amount

Woodsboro, Tex.: 9.3 in.



STORM OF AUGUST 25-SEPTEMBER 3, 1932

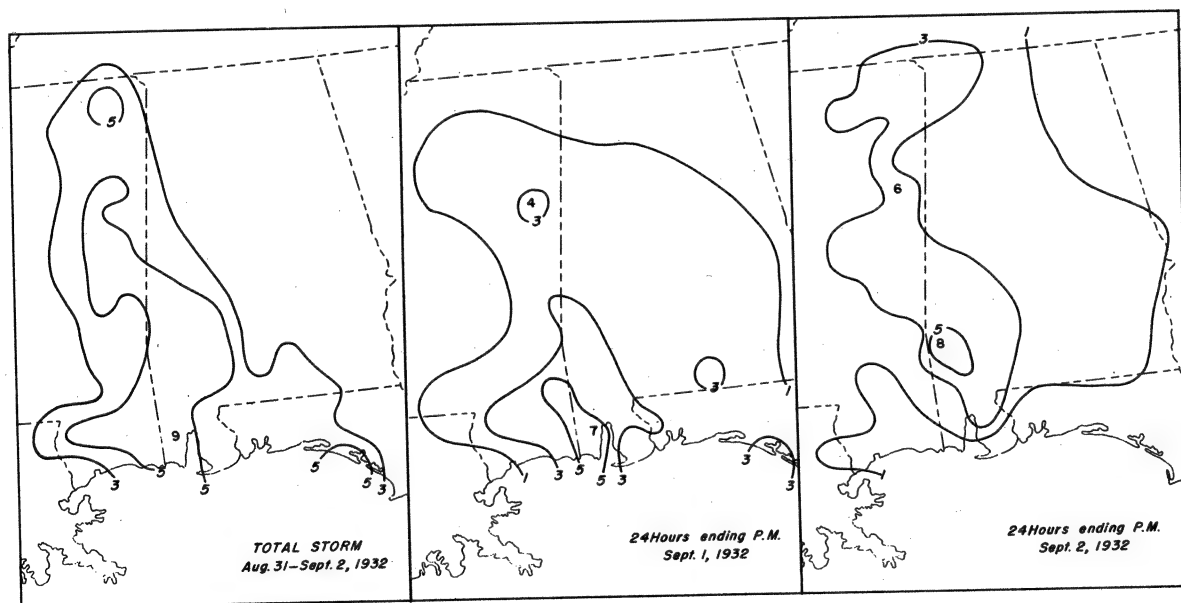
Meteorological Summary

The hurricane that crossed the Gulf Coast near Mobile, Ala., at about 11 p.m. on August 31 had passed through extreme southern Florida* during the night and morning of the 29th and 30th. After crossing the Gulf Coast, the disturbance lost intensity rapidly and recurved to the north and then north-east over western Tennessee on September 2.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it entered the coast on the night of August 31, then spread northward along the path of the disturbance. The heaviest amounts occurred over southern and central Alabama and Mississippi. There were some moderate-to-heavy showers over western Tennessee on the 2nd-3rd as the weakened disturbance passed through that area.

Maximum Total-Storm Amount

Mobile, Ala.: 9.1 in.



*See page 213, South Atlantic Section

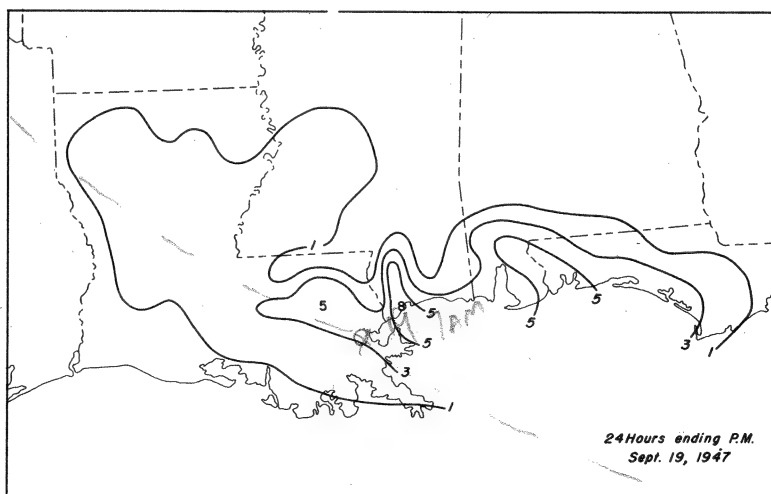
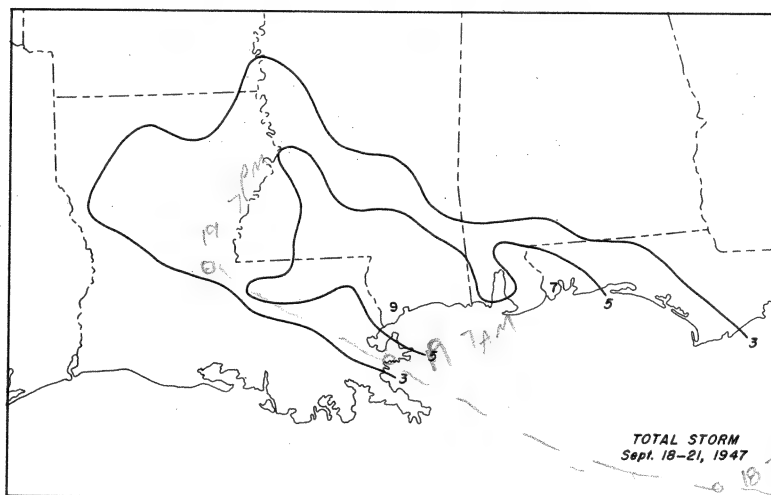
STORM OF SEPTEMBER 18-21, 1947

Meteorological Summary

The major hurricane that swept onto the Louisiana-Mississippi coast and passed directly over New Orleans at 7 a.m. on September 19 had crossed the Florida Peninsula on the 17th.* After leaving Florida on the 17th the hurricane took a more northwesterly course and accelerated, entering the Louisiana-Mississippi coast on the 19th. The hurricane lost intensity rapidly after moving inland. It continued moving northwestward until the 20th when having assumed the characteristics of an extratropical Low, it recurved sharply to the northeast and reached the Great Lakes on the 21st.

Rainfall was heavy ahead and to the right of the disturbance as it passed just south of the Gulf Coast and then crossed it on the 19th. The amounts and intensity of the rain diminished rapidly as the weakened disturbance passed through Louisiana into Texas.

Maximum Total-Storm Amount
Bay St. Louis, Miss.: 9.1 in.



*See page 216, South Atlantic Section

STORM OF JULY 21-23, 1909

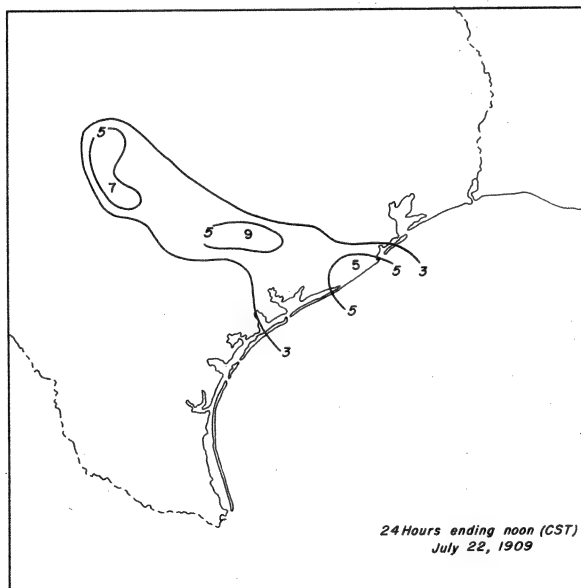
Meteorological Summary

The tropical disturbance that entered the Gulf Coast just north of Corpus Christi, Tex., on July 21 was first observed in the western Caribbean on July 18. It moved northwestward through the Yucatan Channel and across the Gulf of Mexico through an area of weak pressure gradient and entered the Texas coast north of Corpus Christi, on the afternoon of July 21. After moving inland, it continued westward and dissipated over south-central Texas by the morning of July 22.

Rainfall was moderate to heavy to the right of the disturbance and along its path, with the bulk of the rainfall occurring from the morning of July 21 to the morning of July 22, as the disturbance moved inland.

Maximum Total-Storm Amount

Hallettsville, Tex.: 8.5 in.



STORM OF SEPTEMBER 17-20, 1932

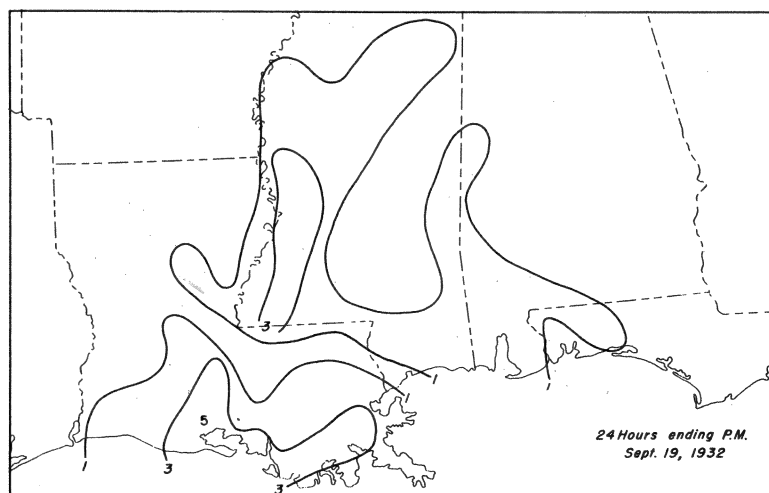
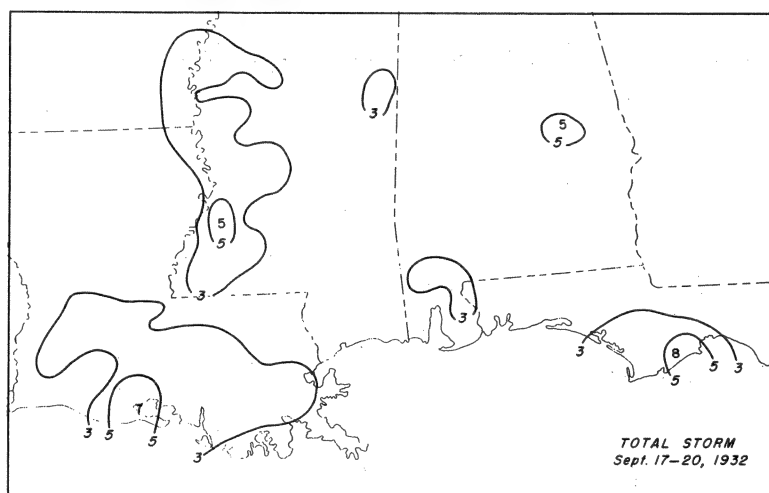
Meteorological Summary

The weak tropical disturbance that entered the central Louisiana coast on September 19 was first observed in the central Gulf on September 18. It moved rapidly northeastward, crossing the Louisiana coast and merging with an eastward-moving cold front on the morning of September 20. The disturbance then moved rapidly eastward along the frontal system as a wave.

Rainfall was moderate to occasionally heavy along the immediate path of the disturbance as it entered the Louisiana coast on September 19; however, there was a series of moderate-to-heavy showers along the Gulf Coast from the 17th to the 20th in the warm tropical air that persisted over the region.

Maximum Total-Storm Amount

Carrabelle, Fla.: 8.3 in.



STORM OF SEPTEMBER 3-6, 1948

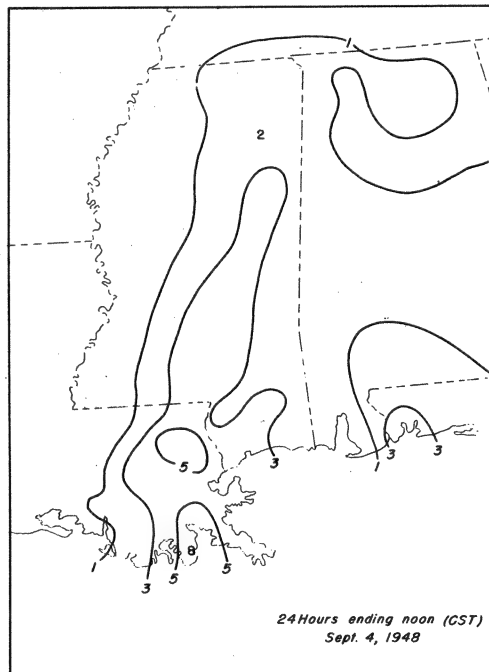
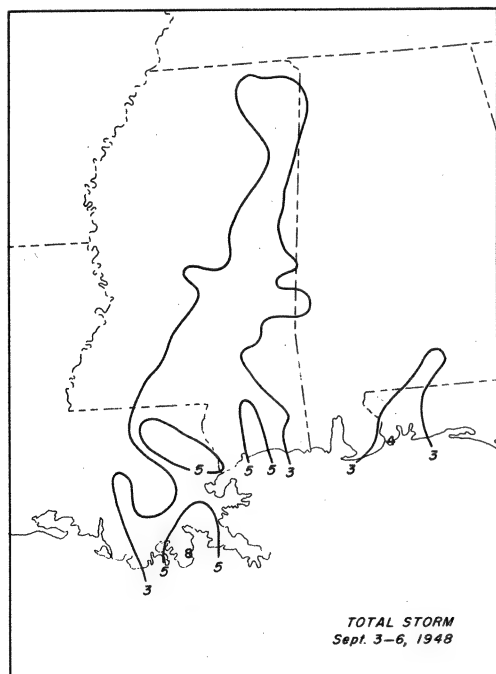
Meteorological Summary

The hurricane that crossed the Louisiana coast west of Grand Isle during the morning of September 4 formed in an area of unsettled weather over the southwestern Gulf on the morning of the 3rd. The hurricane moved north-northeastward and crossed the Louisiana coast on the 4th. The hurricane then passed over New Orleans at about noon and reached Hattiesburg, Miss., by 2 p.m. Weakening rapidly, the disturbance continued northward passing near Memphis, Tenn., and Cairo, Ill., before it lost its identity over the Great Lakes on the 7th.

Rainfall was heavy ahead and to the right of the hurricane as it crossed the Louisiana coast on September 4, with rainfall amounts and intensities decreasing rapidly as the disturbance weakened and moved northward.

Maximum Total-Storm Amount

Grand Isle, La.: 8.1 in.



STORM OF SEPTEMBER 27-30, 1905

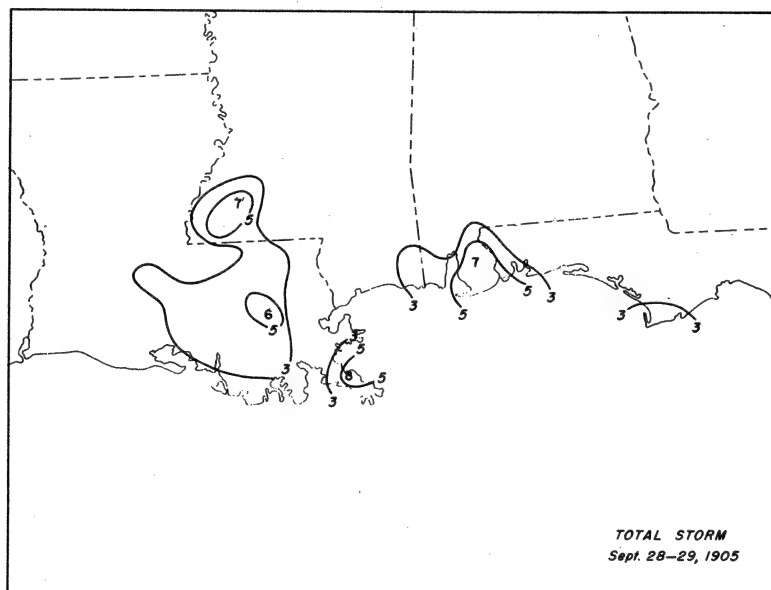
Meteorological Summary

The weak tropical disturbance that entered the Louisiana coast on the morning of September 29 was first noted over the central Gulf of Mexico on the 26th. The disturbance moved slowly northwestward, crossed the Louisiana coast on the 29th, and finally dissipated over southern Arkansas on the morning of the 30th.

Rainfall was moderate to occasionally heavy from Louisiana to Florida from September 27 to September 30 in the warm, moist air flow brought into the area by the circulation of the weak disturbance. There was also an area of moderate-to-heavy showers in the forward quadrants of the disturbance as it crossed the Louisiana coast on the 28th.

Maximum Total-Storm Amount

Venice, La.: 8.1 in.



STORM OF JULY 31-AUGUST 2, 1947

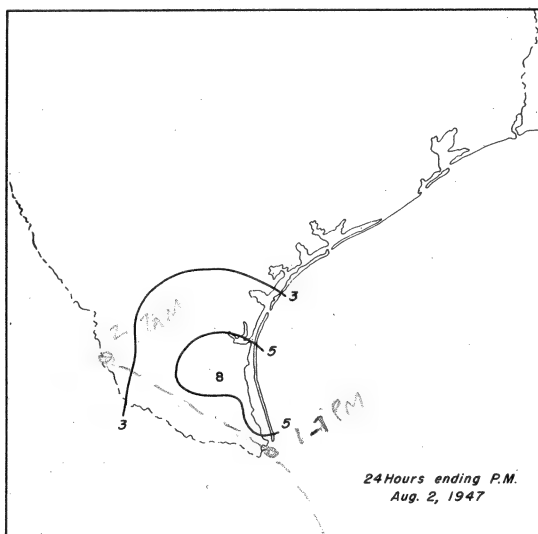
Meteorological Summary

The minor tropical disturbance that crossed the Gulf Coast a short distance south of Brownsville, Tex., on August 1 was first observed over the southwestern part of the Gulf of Mexico on July 31. The disturbance moved westward, then northwestward, through the Gulf, crossed the Gulf Coast on the 1st and dissipated rapidly thereafter.

The isohyetal pattern indicates moderate-to-heavy rainfall to the right of the center as it moved inland and dissipated during the period of August 1-2. There may be some discrepancy in the isohyetal pattern due to the sparsity of data in the area affected by the minor disturbance.

Maximum Total-Storm Amount

Raymondville, Tex.: 7.9 in.



STORM OF AUGUST 27-28, 1909

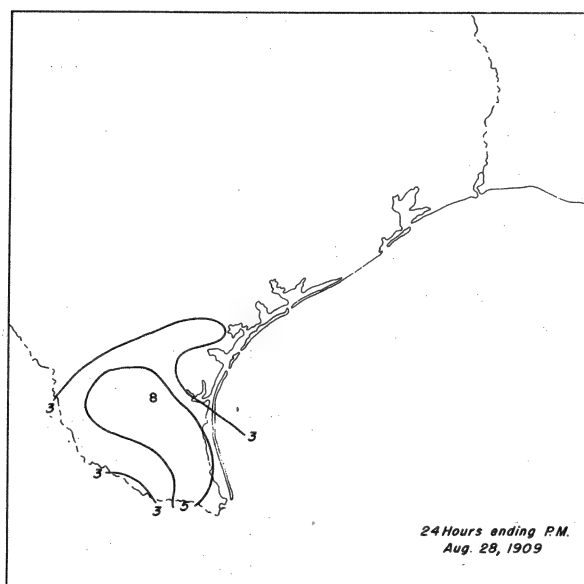
Meteorological Summary

The disturbance that entered the Gulf Coast just south of Brownsville, Tex., was first observed over the eastern Caribbean on August 21. It moved westward across the Caribbean and on August 26 crossed the Yucatan Peninsula where it curved slightly northward paralleling the flow of a ridge extending westward to Arizona from the Bermuda High. Following this trajectory, the tropical disturbance entered the Gulf Coast south of Brownsville during the afternoon of August 27 and then lost its identity in the mountains of Mexico by morning of August 28.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland. Rains ended over this area by morning of August 28 when the disturbance lost its identity in the mountains of northern Mexico.

Maximum Total-Storm Amount

Falfurrias, Tex.: 7.8 in.



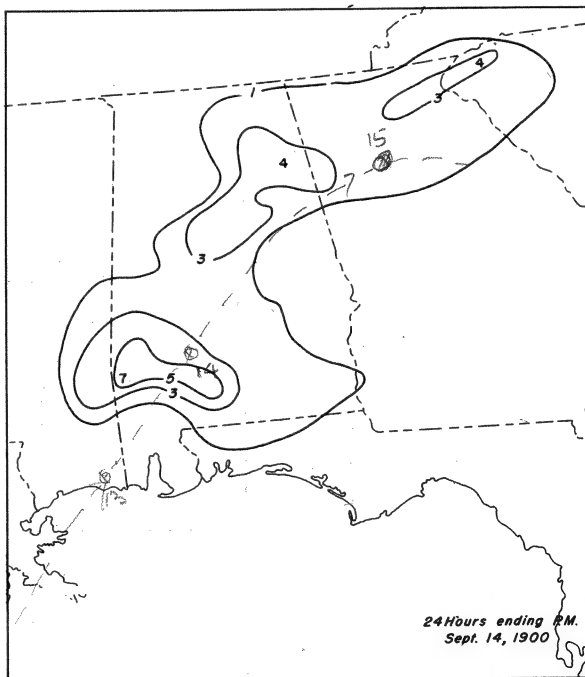
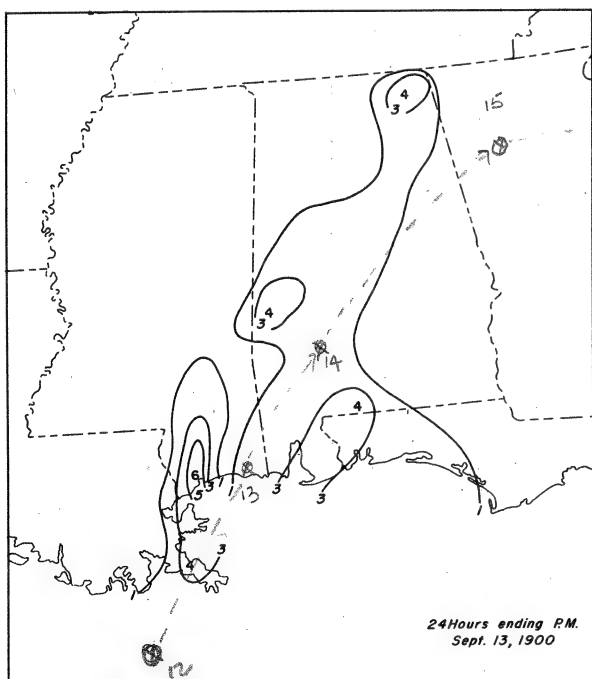
STORM OF SEPTEMBER 13-14, 1900

Meteorological Summary

The tropical disturbance which resulted in the storm of September 13-14 was first observed over the western Caribbean on September 10. It moved through the Yucatan Channel and followed the western edge of the Bermuda High. When the Bermuda High shifted eastward, the tropical disturbance moved due north, reaching the Gulf Coast near New Orleans by morning of September 13 as a hurricane of moderate intensity. After moving inland, the disturbance stagnated and deepened as an extratropical Low and moved slowly northeastward toward a quasi-stationary front in northern Georgia. On September 15 a vigorous cold front pushed into the area and consolidated with the remnants of the tropical disturbance. The new Low that formed along the cold front moved rapidly through the frontal zone producing moderate showers along its path as it moved from Georgia to New England which it reached by September 16.

Maximum Total-Storm Amount

Healing Springs, Ala.: 7.6 in.



STORM OF JUNE 7-15, 1912

Meteorological Summary

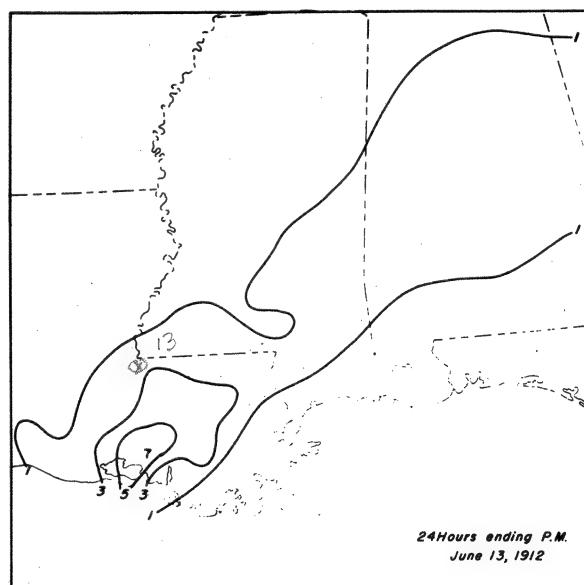
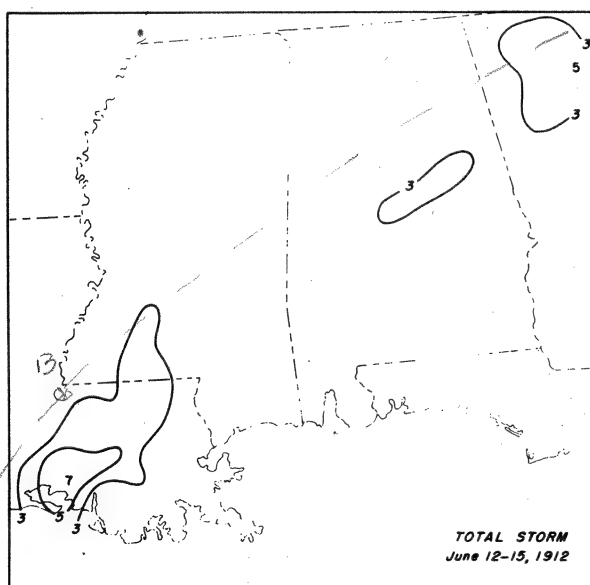
The tropical disturbance that entered the Louisiana coast during the night of June 12-13 was observed in the northwestern Caribbean on the 6th. The disturbance moved northwestward until the 9th, then followed a westward course until the 11th. It then began to recurve sharply to the northeast and crossed the Louisiana coast on the night of the 12th-13th. The disturbance continued northeastward and left the mainland near Hatteras, N. C., during the afternoon of the 14th.

Rainfall was heavy along the path of the disturbance with the heaviest 24-hour amounts occurring along the Louisiana, Mississippi, and Alabama coasts on the 13th and spreading northeastward to the Carolinas. The following were the maximum 24-hour amounts reported for the 14th:

Norcross, Ga.: 4.5 in.
 Hartwell, Ga.: 4.3 in.
 Anderson, S. C.: 4.3 in.

Maximum Total-Storm Amount

Franklin, La.: 7.2 in.



STORM OF JULY 5-10, 1901

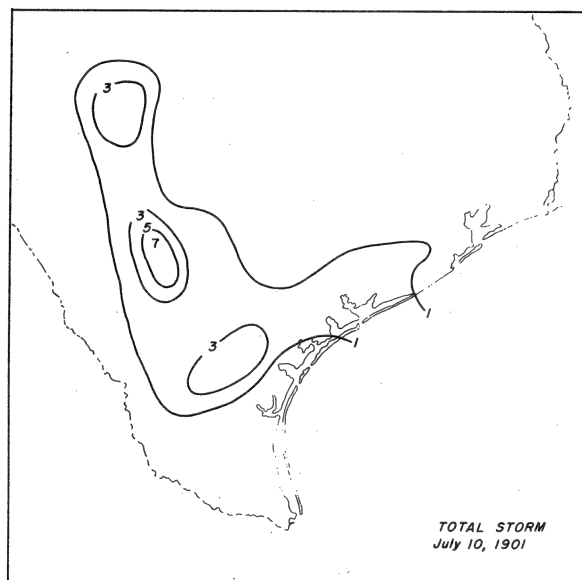
Meteorological Summary

The weak tropical disturbance which gave rise to the rains of July 5-10 moved from the western Caribbean through the Yucatan Channel on July 8 and continued moving northwestward. It crossed the Texas coast west of Galveston on July 10 and dissipated in a ridge of high pressure that extended westward from the Bermuda High.

The rainfall associated with this disturbance was very light along the Texas coast, with only light-to-moderate orographic showers occurring in a zone of west Texas directly ahead and to the right of the disturbance as it moved inland.

Maximum Total-Storm Amount

Hondo City, Tex.: 7.0 in.



STORM OF SEPTEMBER 18-26, 1941

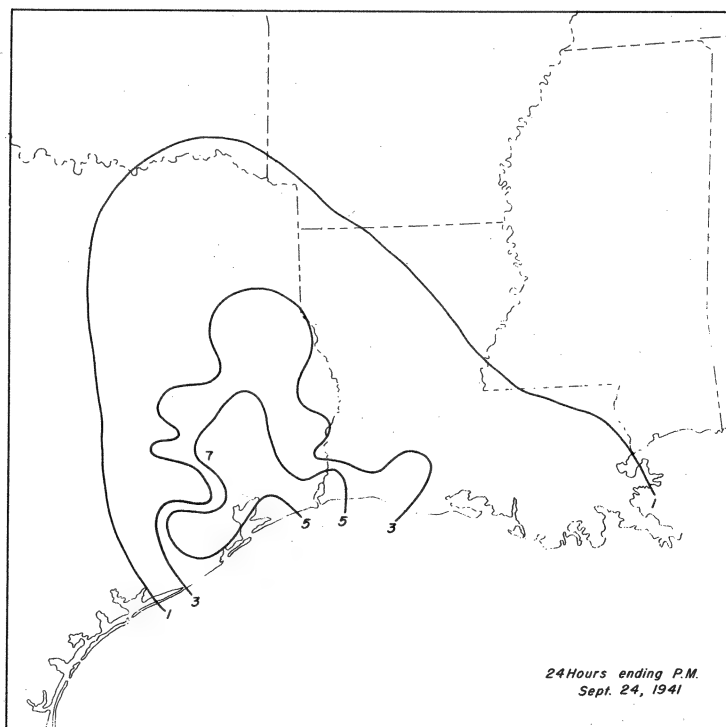
Meteorological Summary

The hurricane that entered the Texas coast near Matagorda at 4:25 p.m. on September 23 was first observed over the central Gulf 180 miles south of Port Eads, La., on the 18th. The disturbance moved southward and intensified until the night of the 20th, when it turned northward and then, on the 21st, northwestward toward the Texas coast. It entered the Texas coast on the 23rd, and moved very slowly northward until the morning of the 24th when it curved toward the northeast, moving at an accelerated rate. The disturbance passed through the Mississippi Valley and over the Great Lakes into Canada on the 25th.

Rainfall was heavy from afternoon of the 23rd to morning of the 24th along the path of the hurricane. Amounts diminished after the disturbance accelerated to the northeast, with only light-to-moderate showers along the path of the disturbance as it moved through the Mississippi Valley.

Maximum Total-Storm Amount

Conroe, Tex.: 7.0 in.



STORM OF OCTOBER 9-10, 1905

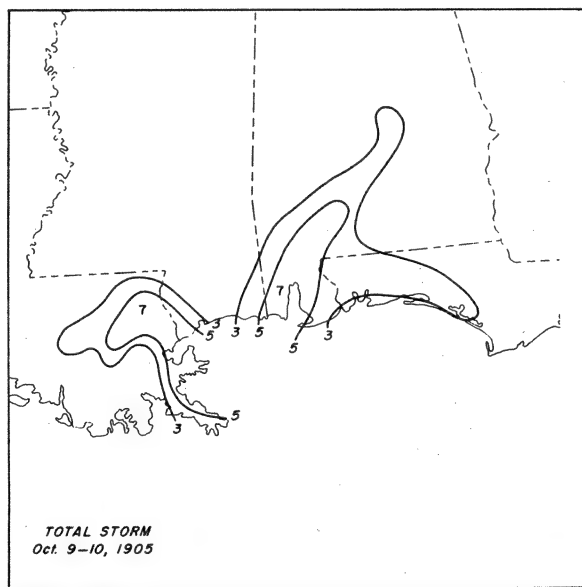
Meteorological Summary

The moderately intense hurricane that entered the central Louisiana coast on October 9 was first observed in the south-central Gulf of Mexico on October 5. It moved westward, deepened, and finally curved sharply to the northeast on October 8. The disturbance continued northeastward, passing over the central Louisiana coast during the afternoon of October 9, and consolidated with an eastward-moving cold front in western Georgia on October 10. The extratropical High behind the cold front moved southward and eastward, spreading cool dry air over the Gulf States by morning of October 11.

Rainfall along the Gulf Coast was moderate to heavy ahead and to the right of the tropical disturbance from the morning of October 9 to the morning of October 10 as the disturbance moved inland. Rain also fell ahead of the disturbance as it moved as a wave formation along the frontal zone west of the Appalachians.

Maximum Total-Storm Amount

Spring Hill, Ala.: 6.8 in.



STORM OF AUGUST 27-29, 1938

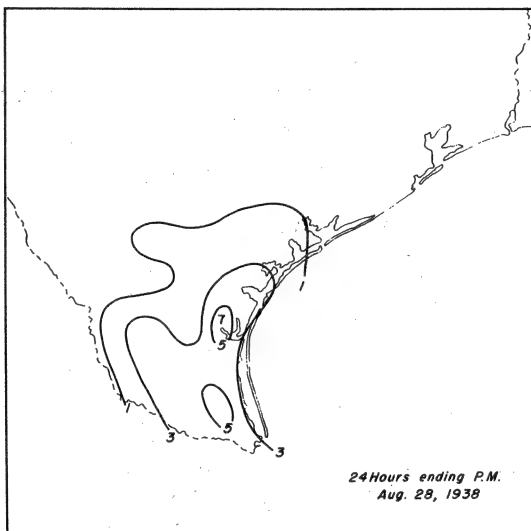
Meteorological Summary

The tropical disturbance that entered the Gulf Coast about 200 miles south of Brownsville, Tex., on the morning of August 28 was first observed over the central Caribbean on August 23. It moved west-northwestward, crossed the Yucatan Peninsula, entered the Mexican coast on the 28th, and then dissipated.

Due to the lack of data, the rainfall distribution near the path of the disturbance is unknown. However, the amounts in southern Texas were fairly heavy, as can be seen from the isohyetal map of August 28.

Maximum Total-Storm Amount

Sarita, Tex.: 6.5 in.



STORM OF OCTOBER 16-18, 1912

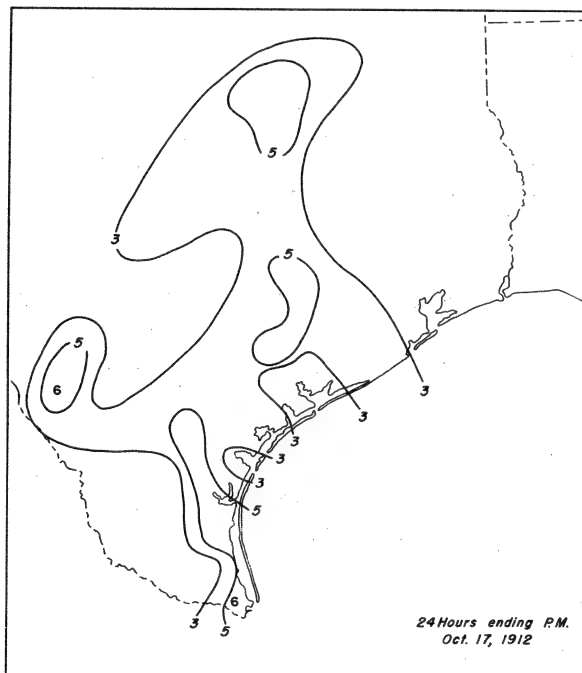
Meteorological Summary

The tropical disturbance that entered the Texas coast near Corpus Christi, Tex., on October 16 was first observed in the central Caribbean on October 11. It moved across the Yucatan Peninsula and followed the flow of a high-pressure system centered over Kentucky. The disturbance crossed the southern Texas coast on October 16; from there it curved northward then northeastward around the western edge of the high center. It dissipated over northern Louisiana on October 18.

Rainfall was moderate to heavy in the immediate vicinity of the tropical disturbance as it moved inland over southern Texas. Rainfall amounts diminished rapidly as the tropical disturbance moved north and east, with the heaviest amounts occurring from the afternoon of October 16 to the afternoon of October 17.

Maximum Total-Storm Amount

Brownsville, Tex.: 6.3 in.



STORM OF JUNE 28-30, 1909

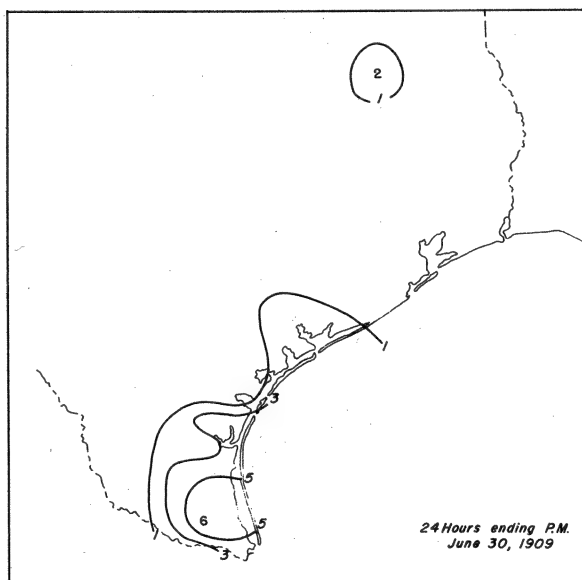
Meteorological Summary

The tropical disturbance that entered the Gulf Coast just north of Brownsville, Tex., on June 30 was first observed on June 28 over the central Gulf of Mexico. It moved slowly west-northwestward, striking the Coast near Brownsville, Tex., during the morning of June 30.

Rainfall was moderate to heavy for a short period of time, with the rains occurring in the immediate vicinity of the tropical disturbance as it moved inland on June 30.

Maximum Total-Storm Amount

Llano Grande, Tex.: 6.0 in.



STORM OF AUGUST 18-19, 1916

Meteorological Summary

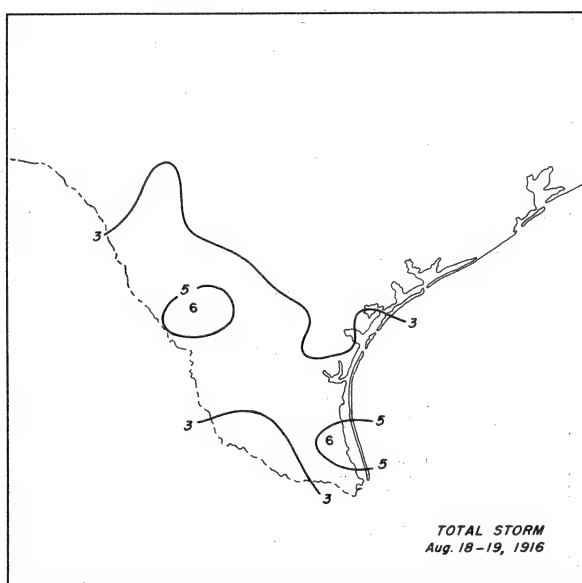
The tropical disturbance that reached the Texas coast just north of Brownsville on August 18 was first observed in the southwestern Atlantic on August 13. The tropical disturbance moved west-northwestward following the southern edge of the Bermuda High. Passing through the Caribbean and across the Yucatan Peninsula the disturbance entered the Gulf of Mexico during the night of August 17. It then moved rapidly across the Gulf and crossed the Texas coast near Brownsville during the night of August 18.

Rainfall was moderate to heavy immediately ahead and to the right of the tropical disturbance and decreased in intensity as the system moved inland. Another area of moderate-to-heavy rains occurred early on the morning of August 19 when the moist tropical air from the decaying tropical disturbance underwent orographic lifting in the mountains of southwestern Texas.

Due to observational procedures during this period, the total-storm isohyetal map has been used to indicate the 24-hour precipitation pattern.

Maximum Total-Storm Amount

Harlingen, Tex.: 6.0 in.



STORM OF SEPTEMBER 4-5, 1915

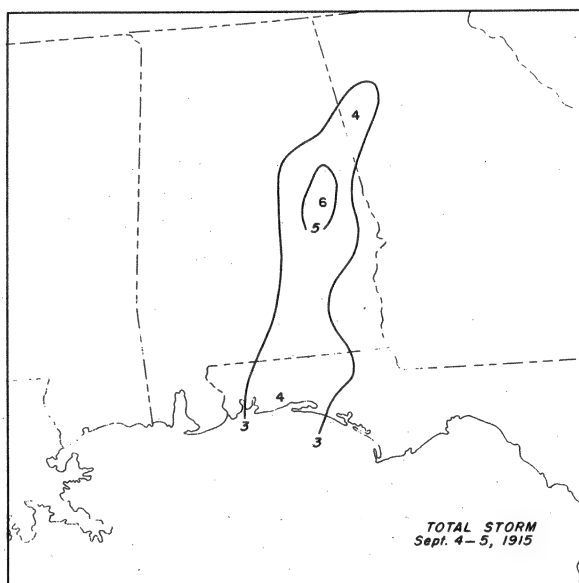
Meteorological Summary

The tropical disturbance that entered the Gulf Coast just west of Pensacola, Fla., on September 4 was first observed over the western Caribbean on September 2. The disturbance moved rapidly northward, passing over western Cuba and then, moving northward, crossed the Florida coast during the afternoon of September 4. It continued northward through an area of weak pressure gradient and finally dissipated over Michigan on September 6.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland but diminished in intensity as it moved northward. The greatest 24-hour amounts occurred in the Gulf States from morning of September 4 to morning of September 5.

Maximum Total-Storm Amount

Dadeville, Ala.: 6.0 in.



STORM OF OCTOBER 10-12, 1902

Meteorological Summary

The hurricane that entered the Gulf Coast near Mobile, Ala., on October 10 was observed over the southwestern Gulf on the 6th. The disturbance moved northeastward and crossed the Alabama coast on the 10th. After moving inland, the disturbance weakened and, following a path to the east of the Appalachians, passed out to sea near the Maryland-Delaware border on the morning of the 12th.

Rainfall was moderate to occasionally heavy along the path of the disturbance from October 10 to October 12. The following 24-hour maxima were observed:

Bay St. Louis, Miss.:	4.4 in. on October 10
Conway, S. C.:	4.8 in. on October 11

Since the total-storm rainfall for the period from the 10th to the 12th was less than 5 inches, no isohyetal maps have been included for this storm.

STORM OF SEPTEMBER 21-22, 1907

Meteorological Summary

The tropical disturbance that was first observed over the western Caribbean on September 18 did not reach the Gulf Coast as a tropical storm. It maintained a northwestward movement from the Caribbean across western Cuba, and through the Gulf of Mexico until September 21, when it consolidated with a cold front just south of the Louisiana coast. Then it curved sharply northeastward, moving along the frontal zone as a wave disturbance.

Rainfall along the fringe of the Gulf Coast was light to moderate, with the heaviest rains occurring on September 22 and September 23 on the lee side of the Appalachians. This may be attributed to the cyclonic flow of moist air associated with the wave disturbance as it moved northeastward along the Appalachians. Since there was no station reporting any 24-hour heavy rains in the Gulf Coast region, no isohyetal maps are included with this discussion.

STORM OF AUGUST 4-6, 1918

Meteorological Summary

The severe hurricane that entered the Gulf Coast over Lake Charles, La., on August 6 was first observed over the Yucatan Peninsula on August 5. It moved northwestward through the weakened western edge of the Bermuda High, entered the Louisiana coast, and dissipated over west-central Louisiana by morning of August 7.

Rainfall was moderate to occasionally heavy ahead and to the right of the disturbance as it moved inland. Twenty-four hour rainfall amounts of two to three inches were reported along the Gulf Coast from the Texas-Louisiana border to eastern Louisiana, with only one station reporting a 24-hour precipitation amount greater than four inches. These low 24-hour amounts of rainfall may be attributed to the short duration of the storm. Since there were no amounts greater than five inches over the small area affected, isohyetal maps for this storm have not been included.

STORM OF OCTOBER 14-18, 1918

Meteorological Summary

The weak tropical disturbance that entered the Gulf Coast near the Texas-Louisiana border on October 18 formed over the central Gulf of Mexico after a cold front had dissipated in that region on October 14. It drifted slowly from the south-central Gulf toward the coast which it entered near the Texas-Louisiana border on October 18. Shortly thereafter the disturbance dissipated.

Rainfall was negligible through the entire period of the storm with amounts of only 1 to 2 inches occurring in the Louisiana and Texas coastal regions as the disturbance moved inland on October 18.

STORM OF JUNE 16-17, 1922

Meteorological Summary

The tropical disturbance that entered the Gulf Coast near Tampico, Mexico, on June 16 was observed over the western Caribbean on the 13th. The disturbance crossed the Yucatan Peninsula and moved northwestward, reaching the Gulf Coast on June 16.

Rainfall was light to moderate over most of southern Texas; however, rainfall over northern Mexico was heavy and produced a flood along the Rio Grande Valley. Due to the lack of data, no isohyetal maps are presented for this storm.

STORM OF OCTOBER 26-30, 1922

Meteorological Summary

The weak tropical disturbance that entered the Alabama coast on October 30 was evident as a weak, closed tropical Low over the central Gulf of Mexico on October 26. Movement of this weak disturbance was erratic over the Gulf of Mexico and it dissipated shortly after moving inland.

Rainfall was extremely light along the Gulf Coast during this period. Maximum 24-hour rainfall amounts of one-half inch to 1 inch occurred over southern Alabama and western Florida on October 30 as the disturbance moved inland and dissipated.

STORM OF JUNE 28-29, 1929

Meteorological Summary

The tropical storm that entered the Texas coast near Port O'Connor at 4:30 p.m. on June 28 was not detected until it was just a short distance east of the southern Texas coast early on the 28th. The disturbance dissipated rapidly after entering the coast on the 28th.

Rainfall was moderate to heavy ahead and to the right of the path of the disturbance as it crossed the coast; however, no station reported any excessive amounts during the period of the storm. The following 24-hour maxima were recorded:

Karnes City, Tex.: 3.6 in. on June 28

Floresville, Tex.: 3.1 in. on June 29

STORM OF AUGUST 4-5, 1933

Meteorological Summary

The tropical disturbance that entered the Gulf Coast south of Brownsville, Tex., during the night of August 4-5 had passed over southern Florida* on July 30. The disturbance crossed the Gulf in a westerly direction and reached the Mexican Coast by the night of August 4-5. It dissipated rapidly thereafter.

Rainfall over southern Texas was not excessive during the period of August 4 to August 5; maximum 24-hour rainfall amounts were generally about 3 inches over extreme southern Florida.

*See page 165, South Atlantic Section

STORM OF OCTOBER 16-18, 1938

Meteorological Summary

The tropical disturbance that entered the northeastern coast of Texas on October 17 was first observed over the central Gulf on October 16 after a sister disturbance had dissipated over the eastern Gulf. The disturbance moved west-northwestward following the flow of an extratropical high-pressure system and entered the Texas coast on October 17 and dissipated.

Rainfall was generally light, with some occasionally moderate showers occurring in the immediate vicinity of the disturbance as it moved inland and dissipated on October 17 and October 18.

Maximum Total-Storm Amount

Wharton, Tex.: 4.6 in.

Pearl River, La.: 3.1 in.

STORM OF JUNE 16-17, 1939

Meteorological Summary

The weak tropical disturbance that moved inland over Mobile, Ala., on the morning of June 16 was observed at $18^{\circ} 45'$ N and 87° W on the morning of June 12. It moved northward until the evening of the 14th, when the disturbance described a left-hand loop. It then resumed a north-northwestward movement on the night of June 15 and entered the Alabama coast on June 16. The disturbance continued northward and merged with an extratropical low-pressure area over northern Alabama on the 17th.

Rainfall was generally light during the passage of the disturbance, with total-storm maximum amounts ranging between 1 inch to 3 inches over the area traversed by the disturbance.

STORM OF JULY 19-21, 1945

Meteorological Summary

The weak tropical disturbance that entered the Texas coast between Corpus Christi and Brownsville during the afternoon of July 21 was first noted over the west-central Gulf of Mexico on the 19th. The disturbance moved northwestward, heading toward southeastern Texas, until the 20th, when it curved abruptly to the southwest and entered the southern tip of Texas on the 21st.

Scarcely any rain fell over the southern tip of Texas as the disturbance moved inland on July 21; however, showers did occur along the eastern Louisiana coast on the 20th and 21st, with maximum amounts being restricted to a small area along the fringe of the Louisiana coast. The maximum amounts in southern Texas during this period were all below 2 inches.

STORM OF JUNE 14-16, 1946

Meteorological Summary

The weak disturbance that entered the Texas coast near Port Arthur on June 16 was first observed at 29.0° N and 86.5° W about 110 miles south of Valparaiso, Fla., on the 13th. The center moved west-northwestward and on the 16th, passed inland over the coast of southeastern Texas, where it curved to the southwest and dissipated over extreme southeastern Texas on the 17th.

Rainfall was very light throughout Texas during the period of this disturbance with a maximum amount of 1.8 inches reported at Orange on the 16th and a maximum of 1.6 inches reported at Rockland on the 17th.

STORM OF AUGUST 21-22, 1947

Meteorological Summary

The tropical disturbance that crossed the Louisiana coast west of Grand Isle on August 22 was first observed on the afternoon of the 21st about 75 miles south-southeast of Burrwood, La. Moving west-northwestward, the disturbance crossed the Louisiana coast on the 21st and dissipated the same afternoon.

Rainfall was very light along the area covered by the path of the disturbance; no 24-hour amounts exceeded 3 inches during the entire period.

III. STORMS IN THE SOUTH ATLANTIC COASTAL REGION

STORM OF OCTOBER 17-22, 1941

Meteorological Summary

The intense rainfall during this storm period was produced by a weak tropical disturbance which was first noticed in the Caribbean on October 17. The disturbance subsequently moved into the eastern Gulf and then recurved into the Florida Peninsula near Cedar Keys on October 19. From here it moved slowly northeastward, becoming almost stationary near the Florida west coast during the 20th and 21st. Convergence of the heavily moisture-laden air about the tropical disturbance produced torrential rains continuously throughout the 2-day period over a limited area of approximately 5,000 square miles. By October 22 the storm had all but lost its identity as a tropical disturbance and, as usually occurs in the dissipating stages, broke up into an area of showers which subsequently moved into the southern part of the State.

Rainfall Data*

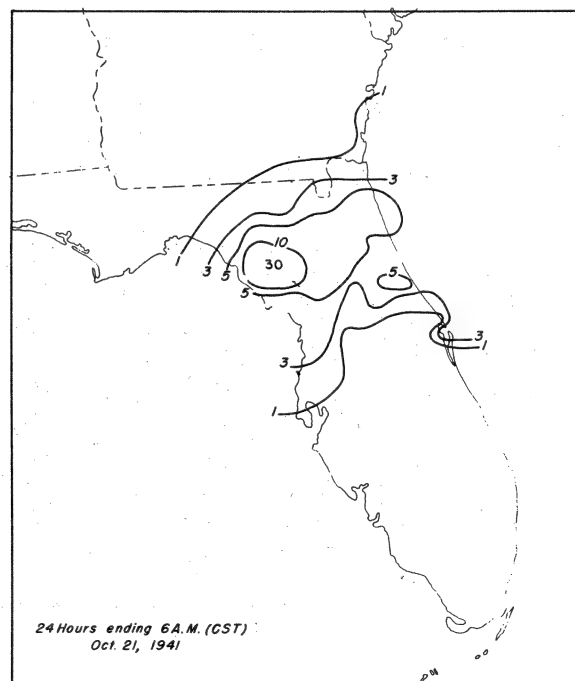
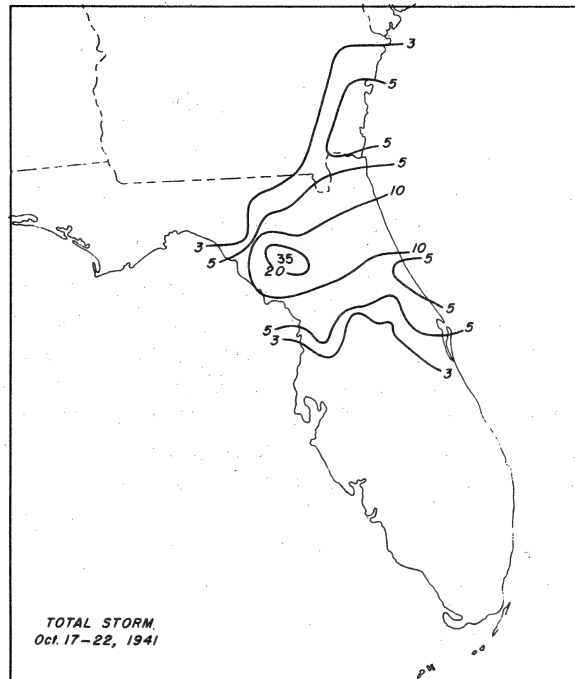
Maximum Total-Storm Amount

Trenton, Fla.: 35.0 in. from 6 p.m., October 19, to noon, October 21

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours										
	6	12	18	24	30	36	48	60	72	96	138
10	12.9	23.5	28.8	30.0	31.0	33.0	35.0	35.0	35.0	35.0	35.0
100	10.4	20.3	24.5	26.1	27.3	28.5	30.9	30.9	30.9	30.9	30.9
200	9.6	18.2	22.6	24.4	25.6	26.8	29.0	29.2	29.2	29.2	29.2
500	8.2	15.2	19.4	21.2	22.3	23.5	25.3	25.5	25.6	25.9	25.9
1,000	7.0	12.9	16.6	18.2	19.1	20.3	22.0	22.3	22.4	22.7	22.7
2,000	5.7	10.6	13.7	15.2	16.0	17.0	18.6	19.1	19.2	19.5	19.6
5,000	4.0	7.6	9.9	11.2	11.9	12.7	14.1	14.8	15.0	15.3	15.4
10,000	2.8	5.3	7.0	8.1	8.8	9.5	10.7	11.6	11.8	12.2	12.3
25,000	1.1	2.4	3.2	4.2	4.8	5.3	6.2	7.3	7.6	8.0	8.2

*Storm Rainfall in the U. S., SA 5-6, C. of E., U. S. Army



STORM OF JULY 13-17, 1916

Meteorological Summary

The tropical disturbance that entered the Coast in the vicinity of Charleston, S. C. on July 13 as a moderate hurricane was first observed on July 11 northeast of the Windward Islands.

The hurricane produced only light-to-moderate rains as it entered the Coast on July 13. When the disturbance deepened, however, and moved very slowly northwestward towards the Appalachian Mountains, rainfall became extremely heavy, with the largest amounts falling in the eastern Carolinas during the afternoon and night of July 14. The heavy rains continued westward on July 14 and July 15 in the forward quadrants of the disturbance, giving a final heavy burst as it crossed the Appalachian Mountains during the afternoon and night of July 15. The disturbance weakened after crossing the Mountains and dissipated in the western side of the Atlantic subtropical High that had been intensified by an extratropical high center that moved into its western edge by July 15. *

Rainfall Data*

Maximum Total-Storm Amount

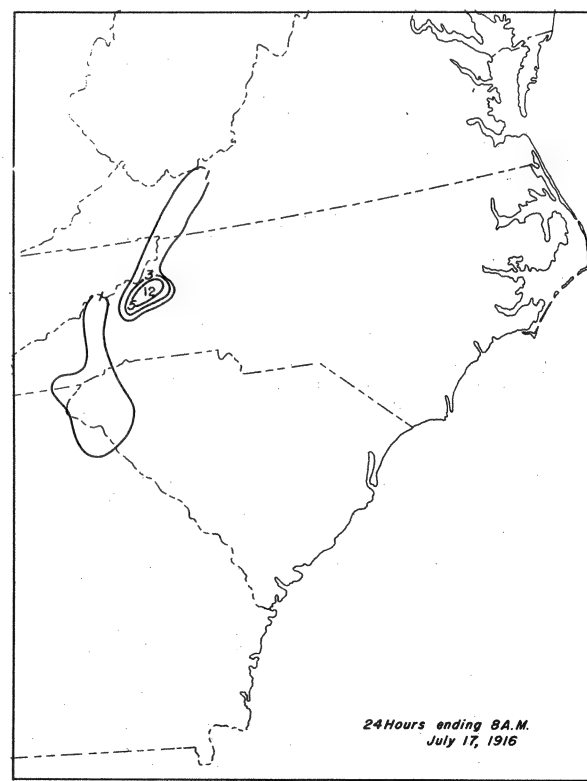
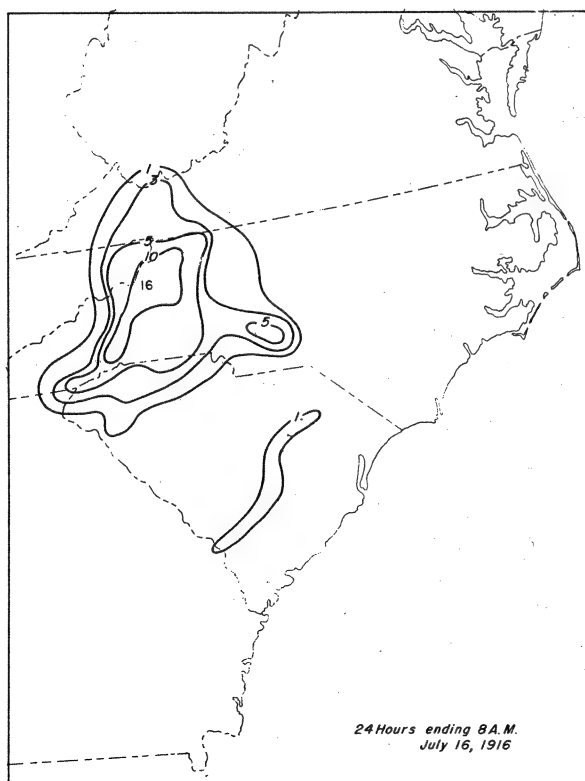
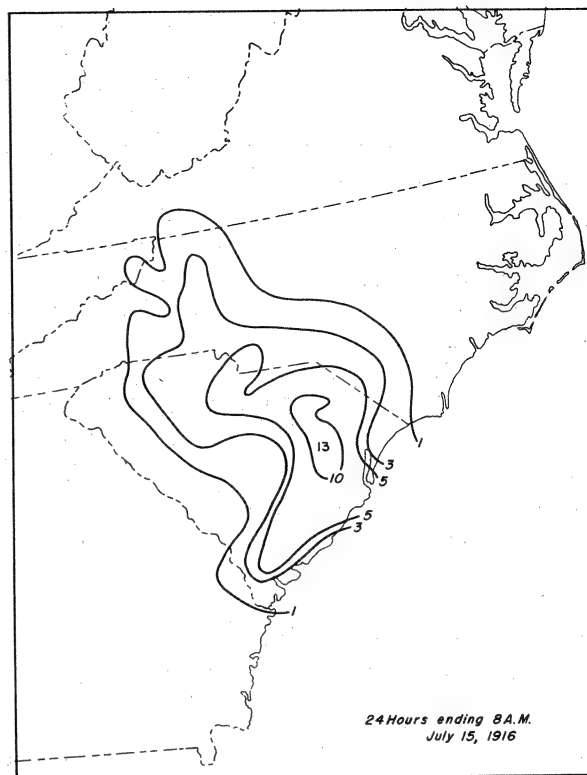
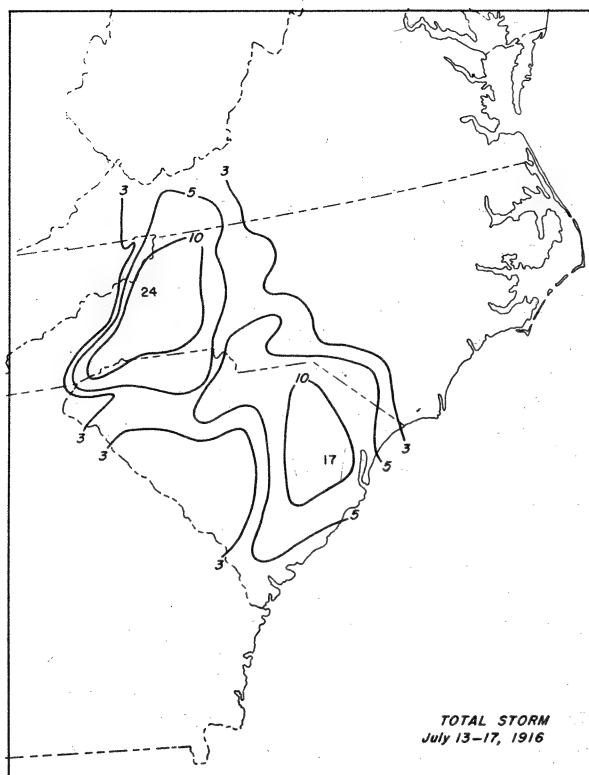
Altapass, N. C.: 23.8 in. from 2 p.m., July 14, to 8 p.m., July 16

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours									
	6	12	18	24	30	36	48	60	72	108
10	8.0	12.6	17.0	22.2	22.9	23.0	23.2	23.7	23.7	23.8
100	7.2	12.0	15.6	19.3	20.8	21.1	21.7	22.1	22.1	22.2
200	6.9	11.7	15.0	18.3	19.9	20.3	20.9	21.3	21.4	21.4
500	6.4	11.1	13.9	16.6	18.3	18.8	19.5	19.8	20.1	20.1
1,000	5.9	10.4	12.9	15.0	16.7	17.3	18.1	18.4	18.6	18.7
2,000	5.1	9.3	11.6	13.3	14.9	15.5	16.3	16.6	16.8	16.9
5,000	3.9	7.4	9.3	10.9	12.0	12.6	13.4	13.6	13.8	14.0
10,000	3.0	5.5	7.2	8.6	9.4	9.9	10.6	10.8	11.0	11.2
20,000	2.1	3.8	5.0	5.9	6.6	7.3	8.0	8.2	8.4	8.6
37,000	1.3	2.2	3.0	3.8	4.7	5.6	7.0	7.5	7.8	8.1

*Storm Rainfall in the U. S., SA 2-9, C. of E., U. S. A.

**See page 292, North Atlantic Section



STORM OF SEPTEMBER 23-OCTOBER 3, 1929

Meteorological Summary

On September 25 the tropical disturbance which produced the storm under discussion was centered over the Bahama Islands after originating in the West Indies. Its forward movement was slow southwesterly, accelerating and curving slowly until it had reached the Florida Straits. It then moved northwestward and, on passing south of the Florida Peninsula on September 28, caused heavy showers in southern Florida. These diminished as the disturbance moved into the Gulf and began to curve northeastward. Heavy rains began ahead of the disturbance as it moved inland near Pensacola, Fla., on September 30 and continued throughout the Southeast as the disturbance consolidated with an eastward-moving cold front, developing a wave formation on October 1 over southern Georgia. The wave moved northeastward along the front producing heavy rain, then light-to-moderate rain, far into New England from October 2-4.

Extremely heavy pre-hurricane rain had fallen over the Southeastern States during the period September 23-28, resulting, in part, from a zone of convergence that spread eastward through the Southeastern States and from moisture added by the tropical disturbance. The pre-hurricane rainfall picture is shown in the isohyetal maps for September 23 through September 28, with the map for September 28 (a and b) showing two independent maximum rainfall centers, (a) in southeastern Georgia, and (b) in southern Florida. The hurricane rainfall is shown on the following pages.

Pre-Hurricane Rainfall Data*

Maximum Total-Storm Amount

Glenville, Ga.: 20.0 in. from 8 a.m., September 24, to 2 a.m., September 28

Maximum Average Depth of Rainfall in Inches

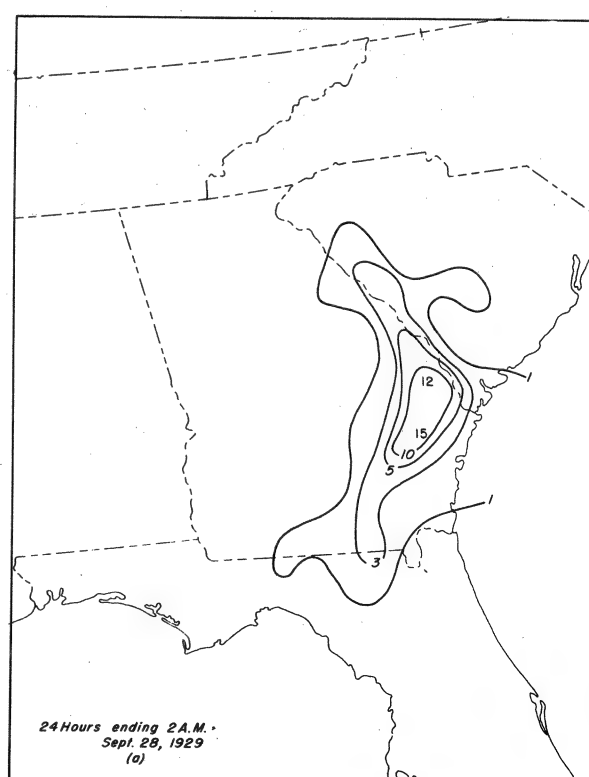
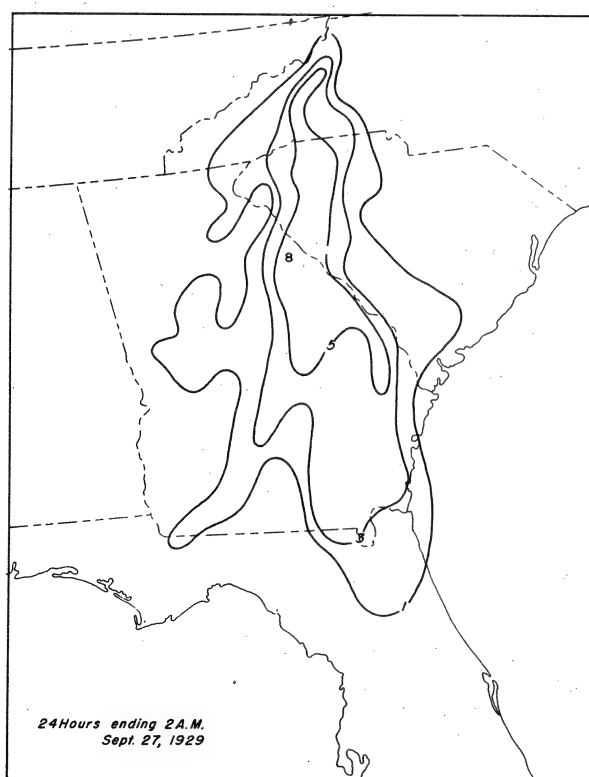
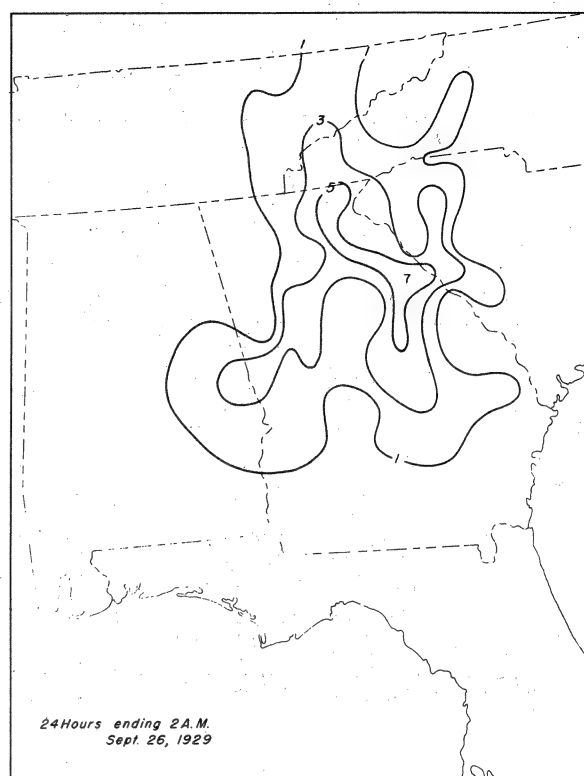
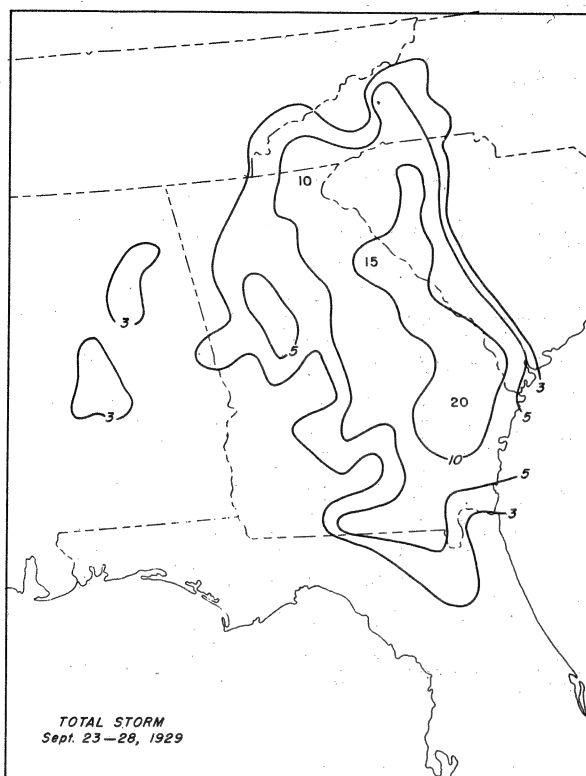
Area in

Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	120
10	8.4	12.9	15.3	16.0	16.0	16.4	19.0	19.6	19.6	20.0	20.0
100	8.1	12.4	14.1	15.1	15.6	16.3	18.4	19.2	19.3	19.7	19.7
200	7.9	12.1	13.7	14.6	15.3	16.1	18.1	18.9	19.0	19.6	19.6
500	7.5	11.6	12.9	13.9	14.7	15.9	17.3	18.5	18.7	19.1	19.1
1,000	7.1	10.9	12.2	13.1	14.0	15.3	16.5	17.8	18.0	18.2	18.2
2,000	6.5	10.0	11.3	12.1	12.9	14.1	15.3	16.3	16.5	16.8	16.8
5,000	5.2	7.8	9.1	9.8	10.6	11.8	13.4	14.2	14.3	14.6	14.7
10,000	3.7	5.6	6.9	7.6	8.5	9.9	11.8	12.5	12.5	12.6	12.7
20,000	2.1	3.6	4.9	5.8	6.7	7.9	9.8	10.5	10.5	10.6	10.7
50,000	1.0	1.9	2.8	3.7	4.5	5.1	6.4	7.0	7.4	7.5	7.7
70,000	0.7	1.5	2.2	3.1	3.8	4.2	5.2	5.7	6.1	6.6	6.7

*Storm Rainfall in the U. S., SA 3-20, C. of C. of E., U. S. Army



Hurricane Rainfall Data*

Maximum Total-Storm Amount

Vernon, Fla.: 13.5 in. from 1 a.m., September 30, to 7 a.m., October 1

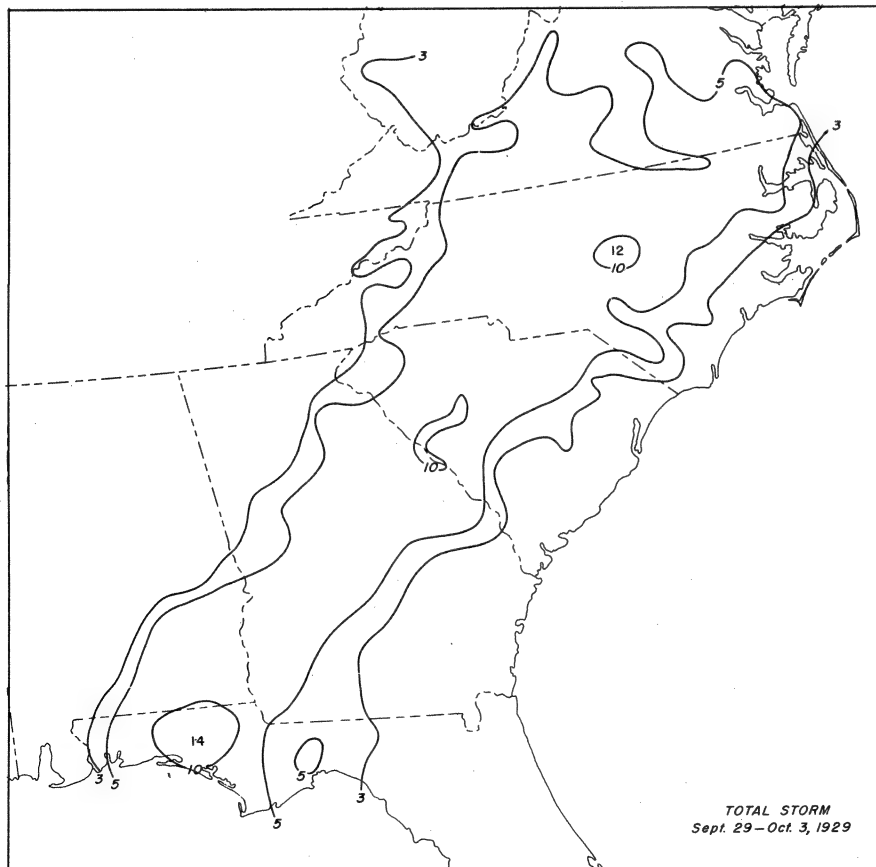
Maximum Average Depth of Rainfall in Inches

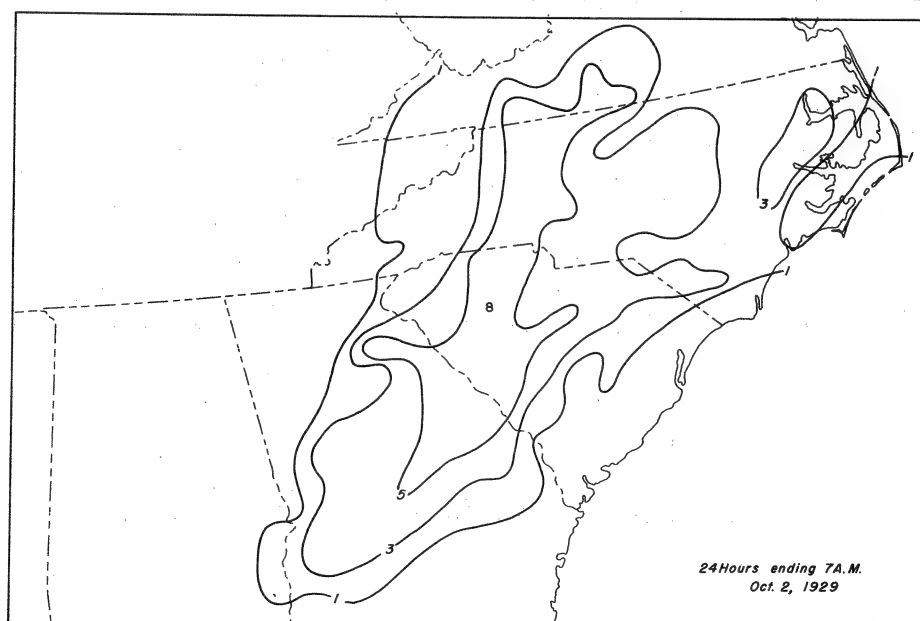
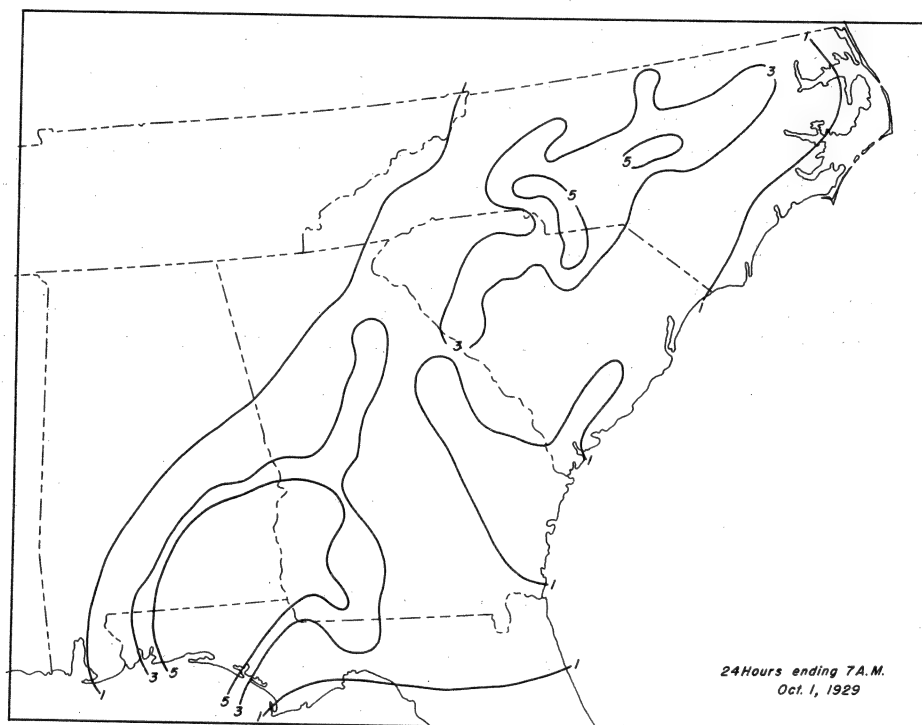
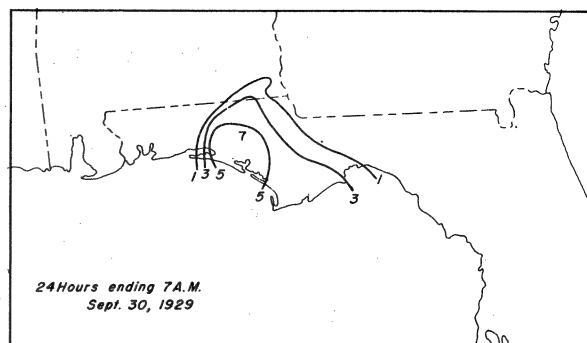
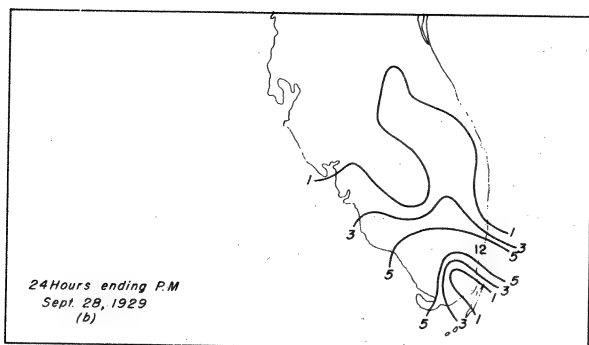
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	84
10	6.1	7.8	8.9	11.1	13.1	13.5	13.5	13.5	13.5	13.5
100	5.7	7.6	8.5	10.5	12.8	13.5	13.5	13.5	13.5	13.5
200	5.6	7.5	8.3	10.3	12.7	13.4	13.4	13.4	13.4	13.4
500	5.4	7.4	8.2	9.8	12.2	13.1	13.1	13.1	13.1	13.1
1,000	5.2	7.3	7.9	9.3	11.6	12.7	12.7	12.7	12.7	12.7
2,000	4.8	6.7	7.5	8.8	10.8	11.8	11.9	11.9	11.9	11.9
5,000	3.9	5.7	6.7	8.0	9.4	10.2	10.5	10.5	10.5	10.5
10,000	3.3	4.9	6.0	7.2	8.3	9.1	9.5	9.5	9.5	9.5
20,000	2.7	4.1	5.3	6.4	7.3	8.2	8.8	8.9	8.9	8.9
50,000	1.8	3.1	4.2	5.3	6.1	7.2	7.9	8.2	8.2	8.2
70,000	1.5	2.7	3.7	4.8	5.6	6.7	7.4	7.7	7.7	7.7

*Storm Rainfall in the U. S., SA 3-23, C. of E., U. S. Army





STORM OF AUGUST 10-17, 1940

Meteorological Summary

The tropical disturbance which resulted in the rain of August 10-17, first noted east of Puerto Rico on the 5th, moved west-northwestward and then northward. On the 9th, meeting a fairly strong high-pressure ridge extending southward from New England, it decelerated, curving to the west-northwest, and entered the Coast as a severe hurricane on the afternoon of the 11th slightly north of Savannah.

Rainfall was moderate to heavy in the quadrants ahead and to the right of the hurricane as it moved inland and then increased to all quadrants as it moved westward. On the 12th the disturbance was centered over west-central Georgia. The disturbance curved slowly northward and then north-eastward on the 13th and 14th, spreading rain in all quadrants as it moved and passed off the Coast on the 18th.

The heavy rains which fell throughout the zone of interest during this period may be attributed to convergent tropical air inflow combined with the orographic influences of the Appalachians.

Rainfall Data (1)

Maximum Total-Storm Amount

Swansboro, N.C.: 19.6 in. from 6 p.m., August 10, to 6 p.m., August 17

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours										
	6	12	18	24	30	36	48	60	90	120	186
10	5.6	8.8	9.0	9.0	11.5	11.5	11.5	11.8	12.3	18.0	19.6
100	5.0	7.6	7.8	8.2	10.3	10.3	10.3	10.4	11.0	13.5	17.8
200	4.7	7.1	7.3	7.7	9.7	9.7	9.7	9.8	10.4	12.1	16.7
500	4.0	6.0	6.2	6.6	8.4	8.5	8.6	8.7	9.3	10.2	14.7
1,000	3.4	4.8	5.0	5.3	6.6	6.9	7.3	7.5	8.2	8.7	12.3
1,850	2.5	3.2	3.3	3.4	3.5	4.5	5.5	5.9	7.2	7.3	10.1

(1) Storm Rainfall in the U. S., SA 5-19c, C. of E., U. S. Army

Rainfall Data (2)

Maximum Total-Storm Amount

Beaufort, S.C.: 12.6 in. from 6 a.m., August 11, to 6 p.m., August 17

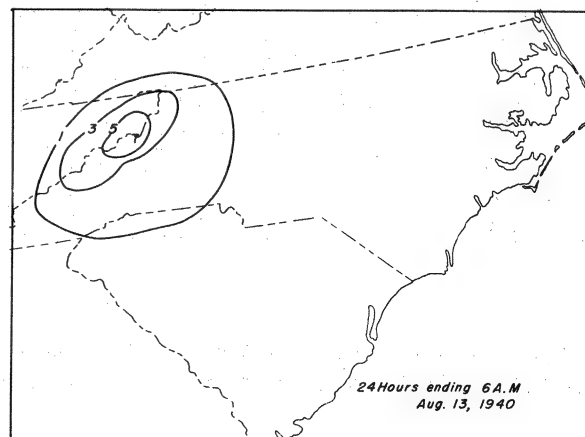
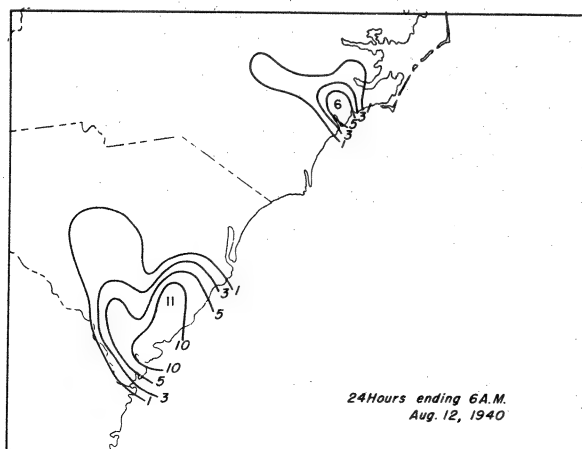
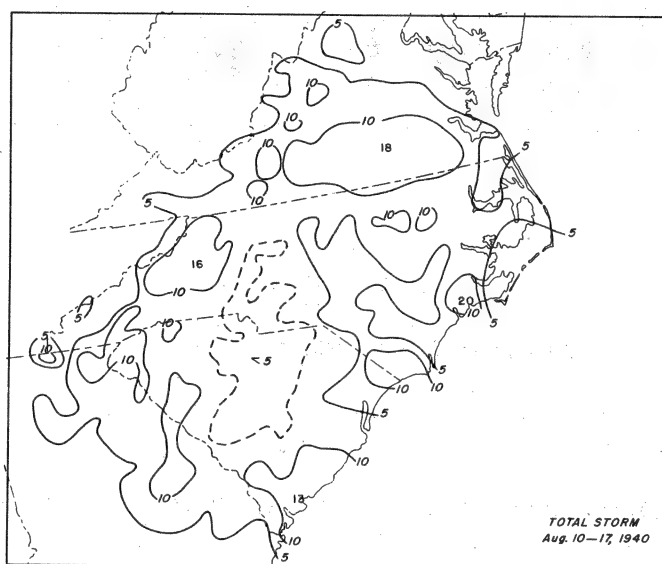
Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	96	120	186
10	7.2	9.6	10.6	10.9	10.9	11.1	11.1	11.4	12.2	12.6	12.6
100	6.2	8.6	10.3	10.7	10.7	10.8	11.0	11.2	11.9	12.5	12.6
200	5.8	8.3	10.2	10.6	10.6	10.7	11.0	11.1	11.8	12.4	12.6
500	5.2	7.8	10.0	10.4	10.4	10.6	10.8	11.0	11.6	12.1	12.5
1,000	4.6	7.2	9.7	10.2	10.2	10.4	10.7	10.8	11.4	11.6	12.4
2,000	3.6	6.5	8.6	9.2	9.4	9.8	10.2	10.3	10.8	11.0	11.8
2,600	3.3	6.1	7.9	8.5	9.0	9.5	9.8	10.0	10.4	10.6	11.5

(2) Storm Rainfall in the U. S., SA 5-19d, C. of E., U. S. Army



Rainfall Data (3)

Maximum Total-Storm Amount

Keysville, Va.: 17.5 in. from 6 a.m., August 11, to midnight, August 17

Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	90	120	186
10	4.5	8.6	10.5	11.5	12.3	12.8	16.3	16.6	16.8	16.8	17.5
100	4.0	7.8	9.6	10.5	11.3	11.8	15.7	16.0	16.2	16.5	17.2
200	3.9	7.6	9.2	10.2	11.0	11.5	15.4	15.6	16.0	16.3	16.8
500	3.6	7.1	8.7	9.6	10.5	11.1	14.7	15.2	15.4	15.7	16.2
1,000	3.5	6.5	8.1	9.1	10.0	10.6	13.7	14.4	14.9	15.2	15.5
2,000	3.3	5.8	7.4	8.5	9.4	10.1	12.7	13.4	14.3	14.3	14.7
5,000	2.9	4.9	6.4	7.5	8.4	9.2	11.0	12.0	12.7	13.0	13.5
10,000	2.4	4.0	5.4	6.4	7.4	8.2	9.6	10.6	11.5	11.7	12.3
20,000	1.7	3.0	4.0	5.0	5.9	6.6	7.9	8.8	9.9	10.1	10.7

Rainfall Data (4)

Maximum Total-Storm Amount

Buck Creek, N.C.: 16.4 in. from noon, August 10, to 6 p.m., August 14

Maximum Average Depth of Rainfall in Inches

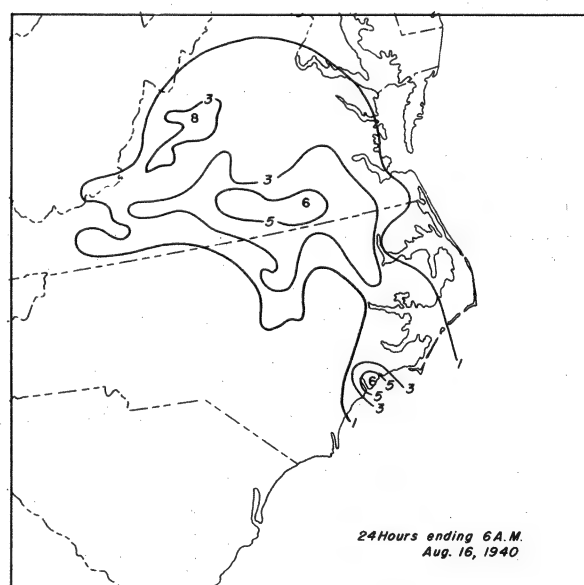
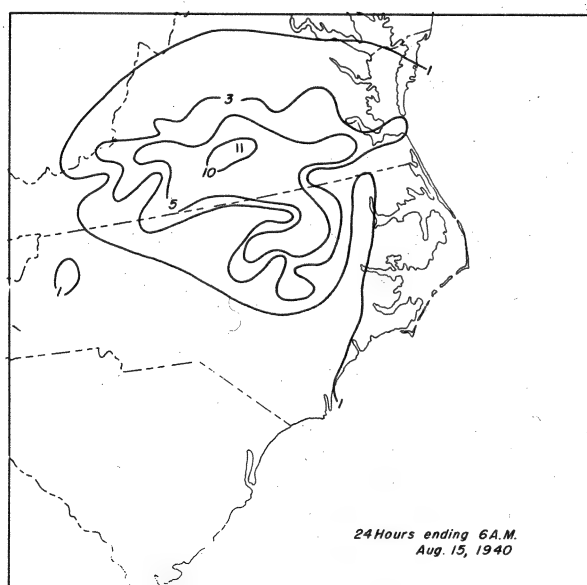
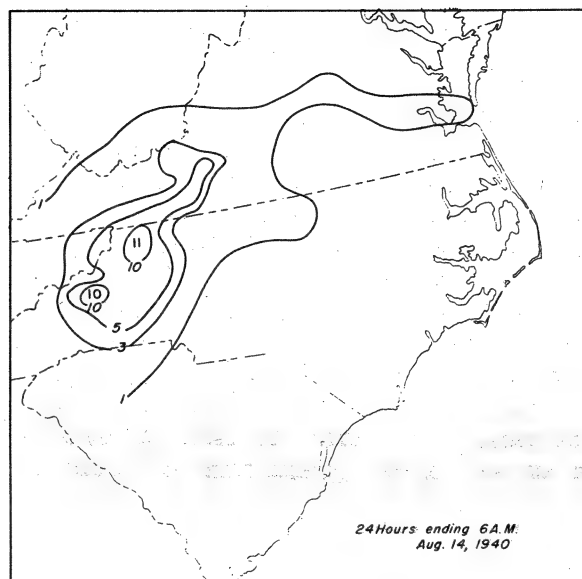
Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	90	120	186
10	5.6	8.7	10.0	11.0	12.6	12.8	13.8	14.3	15.8	16.4	16.4
100	4.2	7.0	8.2	9.3	11.3	11.8	13.1	14.0	14.9	15.6	15.6
200	3.8	6.6	7.7	8.9	10.9	11.5	12.8	13.8	14.6	15.3	15.3
500	3.3	5.9	7.1	8.3	10.3	10.9	12.3	13.4	14.1	14.7	14.8
1,000	3.0	5.4	6.7	7.9	9.7	10.4	11.8	12.8	13.4	13.8	14.2
2,000	2.8	4.9	6.3	7.6	9.1	9.6	11.1	11.9	12.4	12.8	13.2
3,000	2.7	4.5	6.0	7.4	8.7	9.1	10.5	11.0	11.9	12.0	12.4

(3) Storm Rainfall in the U. S., SA 5-19a, C. of E., U. S. Army

(4) Storm Rainfall in the U. S., SA 5-19b, C. of E., U. S. Army



STORM OF AUGUST 28-31, 1911

Meteorological Summary

The hurricane that produced the rain of August 28-31 was first noted at 27°N and 66°W on August 24. Drifting slowly west-northwestward, the hurricane reached the South Carolina-Georgia coast on the morning of August 28th, then continued slowly westward to a new center in eastern Georgia at 8 p.m. General heavy rains began in eastern Georgia and spread southward to extreme northeastern Florida ahead and to the left of the hurricane center as it passed inland on August 28. Meanwhile, a mass of polar Canadian air was pushing southeastward. The tropical disturbance, after advancing into southern Georgia, took on extratropical characteristics, recurved to the northeast, and consolidated with the advancing cold front on August 30 with general rains in all quadrants. The rains ended during the night of August 30 as the cold front moved eastward across the area bringing in dry polar air.

Rainfall Data*

Maximum Total-Storm Amount

St. George, Fla.: 19.1 in. from 6 p.m., August 28, to 6 p.m., August 29

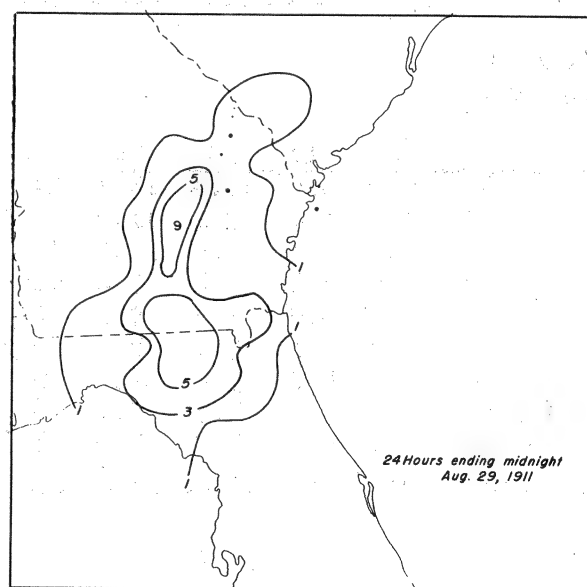
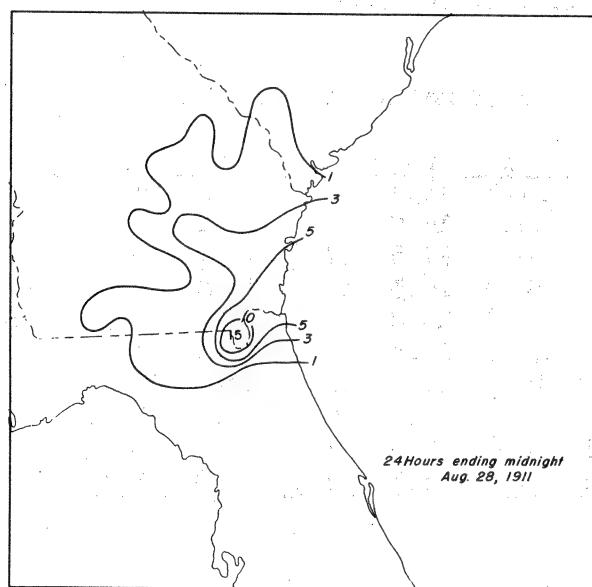
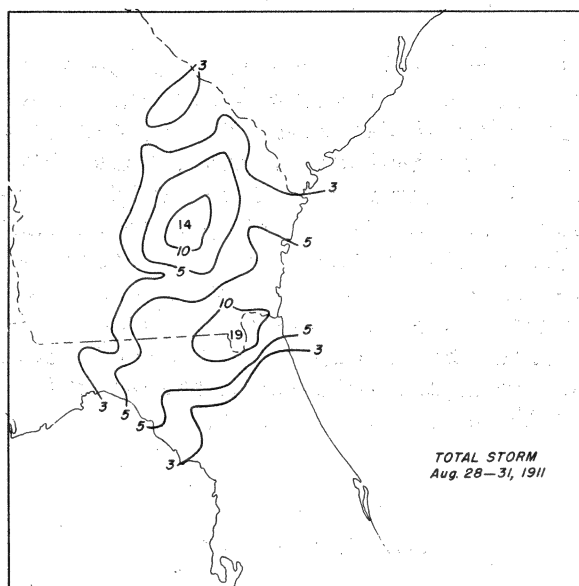
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	84
10	14.9	17.2	18.0	19.0	19.1	19.1	19.1	19.1	19.1	19.1
100	13.4	15.6	16.7	17.2	17.8	17.8	17.8	17.8	17.8	17.8
200	12.7	14.9	16.1	16.4	17.1	17.1	17.1	17.1	17.1	17.1
500	11.4	13.5	14.7	15.0	15.9	15.9	15.9	16.0	16.1	16.1
1,000	9.8	11.9	13.1	13.5	14.5	14.6	14.6	14.7	14.8	14.8
2,000	7.4	9.5	10.6	11.3	12.4	12.7	12.8	12.9	13.0	13.1
5,000	4.7	6.1	7.1	8.0	9.2	10.2	10.4	10.5	10.7	10.8
10,000	3.3	4.4	5.3	6.1	7.2	8.2	8.5	8.7	8.9	9.0
20,000	2.2	3.1	3.8	4.5	5.4	6.2	6.6	6.8	7.1	7.3
39,000	1.4	2.0	2.5	3.1	3.8	4.3	4.6	4.9	5.2	5.3

*Storm Rainfall in the U. S., SA 3-11, C. of E., U. S. Army



STORM OF OCTOBER 11-17, 1942

Meteorological Summary

The tropical disturbance which resulted in the storm of October 11-17 had moved northwestward from the Atlantic Ocean and entered the East Coast on October 12 in the vicinity of Hatteras, N. C., carrying a deep current of moisture-laden air over the headwaters of the Potomac River. Although the disturbance had dissipated by morning of October 13, a stagnant anticyclonic circulation over the Northeastern States helped to intensify the pressure gradient over northern Virginia so that the persistent easterly winds caused orographic rains on the eastern slopes of the Appalachian Mountains. These rains, combined with other convective showers caused by lifting and convergence of the moist air from the dissipating tropical disturbance, produced a 4-day period of record rainfall with the heaviest rains occurring during the period from October 14 to October 16, inclusive.

Rainfall Data*

Maximum Total-Storm Amount

Big Meadows, Va.: 18.9 in. from midnight, October 16, to noon, October 17

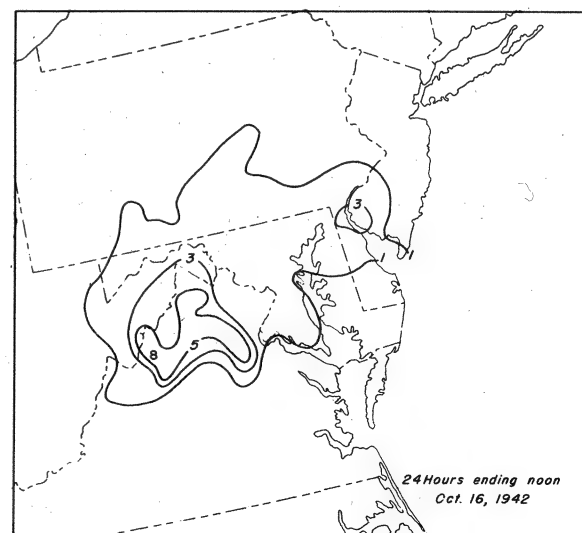
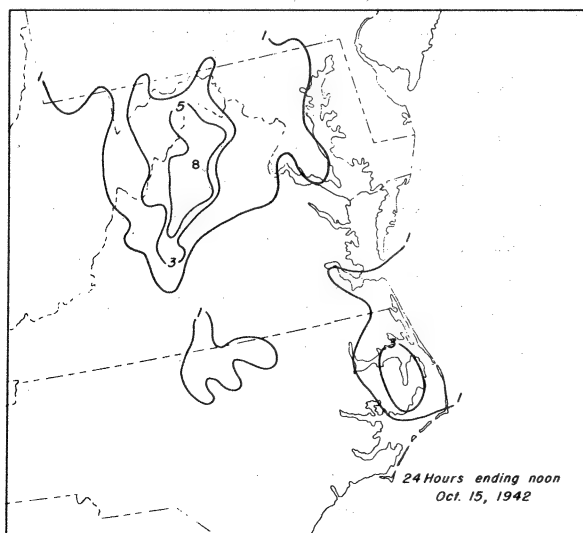
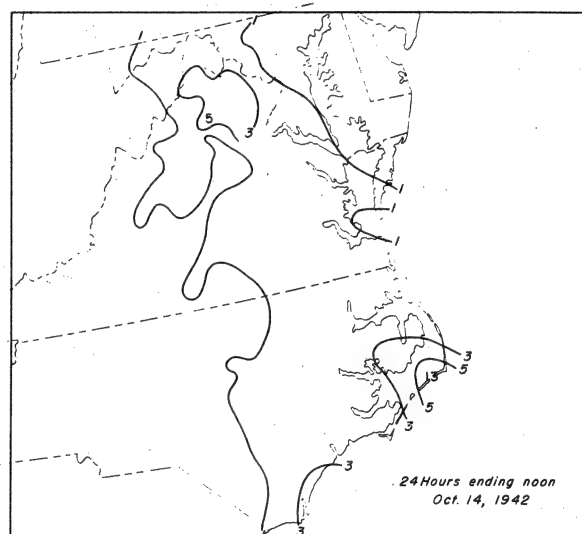
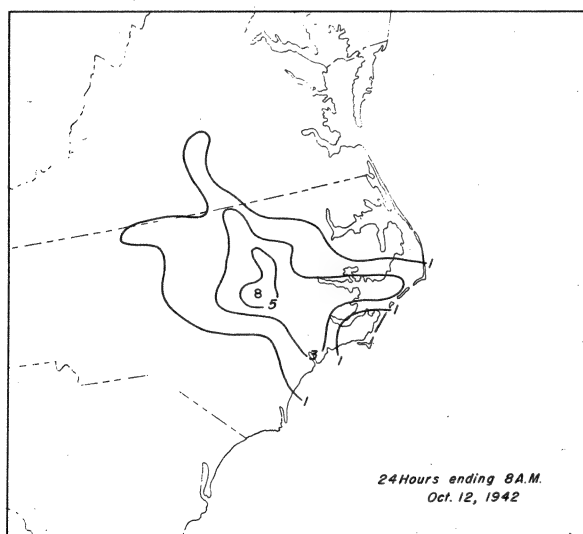
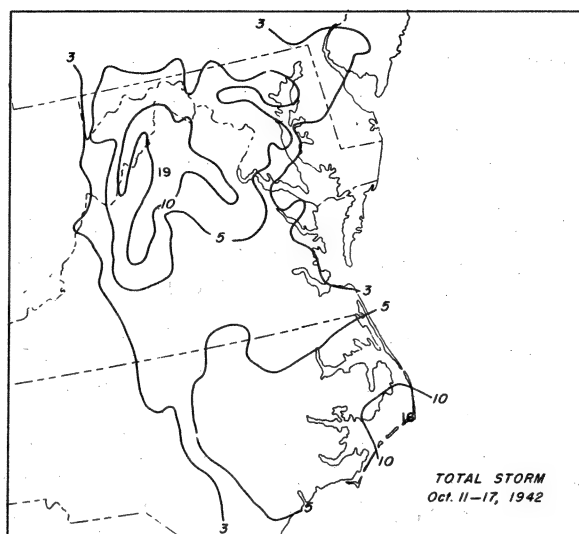
Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	156
10	6.0	8.4	10.9	13.4	14.2	15.6	17.4	18.4	18.7	18.8	18.9
100	4.3	6.0	9.2	11.2	12.5	13.8	16.6	18.0	18.4	18.6	18.6
200	3.9	5.6	8.6	10.5	11.8	13.0	16.1	17.5	17.8	18.1	18.1
500	3.4	5.1	7.8	9.6	10.9	11.9	14.9	16.3	16.5	16.8	16.8
1,000	3.1	4.9	7.4	9.1	10.3	11.1	13.8	15.0	15.3	15.5	15.5
2,000	2.8	4.5	7.0	8.5	9.6	10.5	12.7	13.7	13.9	14.1	14.1
5,000	2.3	3.8	5.9	7.2	8.1	8.9	10.7	11.6	11.8	12.1	12.1
10,000	1.8	3.2	4.5	5.7	6.5	7.1	8.9	9.6	9.8	10.1	10.2
20,000	1.1	2.2	3.0	3.9	4.6	5.1	6.8	7.3	7.5	7.9	8.0
25,000	1.0	1.9	2.5	3.3	4.0	4.5	6.0	6.6	6.8	7.2	7.3

*Storm Rainfall in the U. S., SA 1-28A, C. of E., U. S. Army



STORM OF SEPTEMBER 17-21, 1926

Meteorological Summary

Most of the rainfall in this period was associated with a tropical hurricane that was first observed east of the West Indies on September 13. It moved west-northwestward, passing directly over Miami, Fla., during the morning of the 18th with moderate to heavy rain occurring in the forward half. The disturbance then proceeded to move in a northwesterly direction and crossed the Gulf of Mexico, passing south of Pensacola, Fla., at 3:10 p.m. and south of Mobile, Ala., at 9:30 p.m. on the 20th. The storm then moved west-northwestward and finally dissipated in eastern Texas. Following passage of the hurricane center, scattered thunderstorms occurred in the moist current of air in which the hurricane had traveled. The heaviest thunderstorm activity occurred in southern Georgia where at Thomasville over 6 inches of rain fell during a thunderstorm on the night of September 20-21, while less than an inch fell when the hurricane center was located to the south of it in the Gulf.

Rainfall Data*

Maximum Total-Storm Amount

Bay Minette, Ala.: 18.5 in. from 6 p.m. CST Sept. 19 to 6 p.m. CST Sept. 21

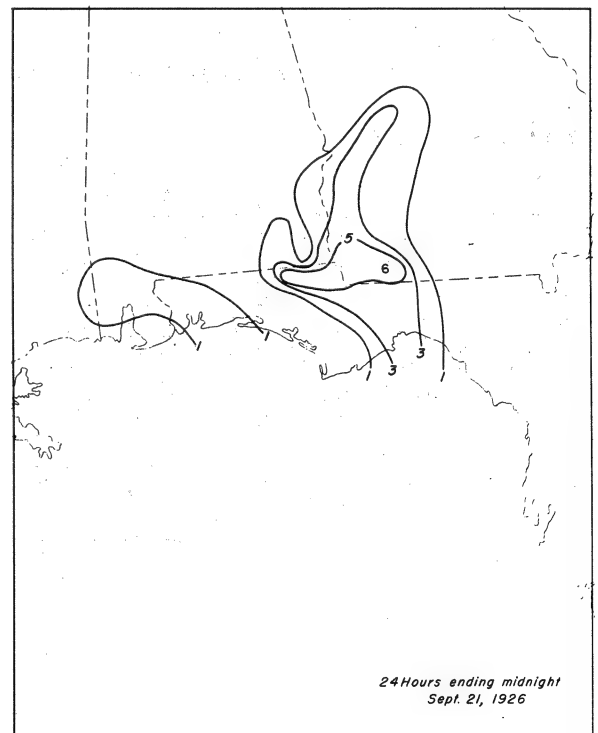
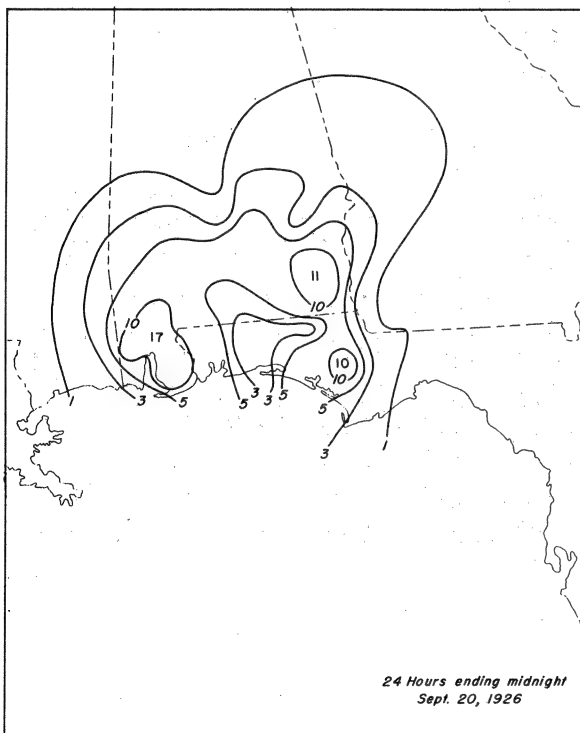
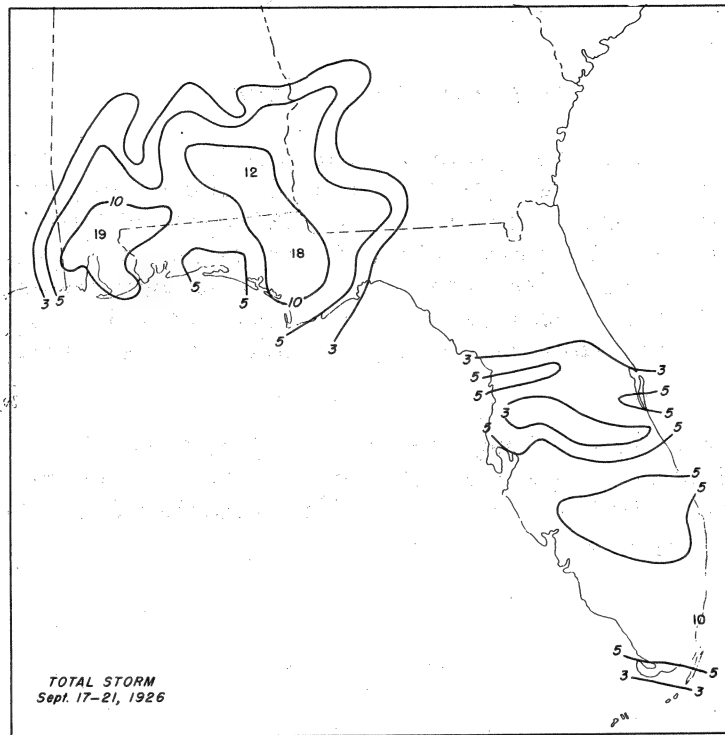
Maximum Average Depth of Rainfall in Inches

Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	120
10	8.5	12.0	15.5	17.2	17.9	18.3	18.5	18.5	18.5	18.5	18.5
100	8.2	11.7	15.0	16.7	17.4	17.8	18.0	18.0	18.0	18.0	18.0
200	7.7	11.2	14.6	16.1	16.7	17.3	17.6	17.6	17.6	17.6	17.6
500	7.1	10.3	13.6	14.8	15.8	16.2	16.5	16.5	16.5	16.5	16.5
1,000	6.4	9.5	12.6	13.7	14.6	15.0	15.4	15.4	15.4	15.4	15.4
2,000	5.6	8.6	11.5	12.5	13.5	13.9	14.2	14.2	14.2	14.2	14.3
5,000	4.6	7.5	10.0	11.0	11.9	12.3	12.6	12.7	12.7	12.7	12.8
10,000	3.7	6.6	8.8	9.8	10.7	11.2	11.5	11.6	11.6	11.6	11.8
20,000	2.9	5.6	7.0	8.4	9.4	9.9	10.2	10.3	10.3	10.3	10.5
35,700	2.1	4.0	5.0	6.0	7.0	7.4	7.9	8.1	8.1	8.1	8.3

*Storm Rainfall in the U. S., SA 4-23, C. of E., U. S. Army



STORM OF AUGUST 31-SEPTEMBER 6, 1935

Meteorological Summary

The violent hurricane that passed over the Florida Keys on the afternoon of September 2 then, recurving, crossed the Florida coast near Cedar Keys at about 2 p.m. on the 4th was first observed northeast of Turks Island on August 31. The disturbance moved westward, reaching the Florida Keys on September 2. After leaving the Keys, the hurricane skirted the Florida Gulf coast and moved inland at Cedar Keys on the 4th. Traveling in a northeastward direction, the hurricane passed out to sea near Cape Henry, Va., on the 6th.

As the hurricane moved along the coast and entered the Peninsula, rainfall continued moderate to heavy along the path and to the right of the disturbance, spreading from the Florida Keys on September 2 to the Middle Atlantic States on September 6.

Rainfall Data*

Maximum Total-Storm Amount

Easton, Md.: 16.7 in. from 8 p.m., September 3, to 2 p.m., September 6

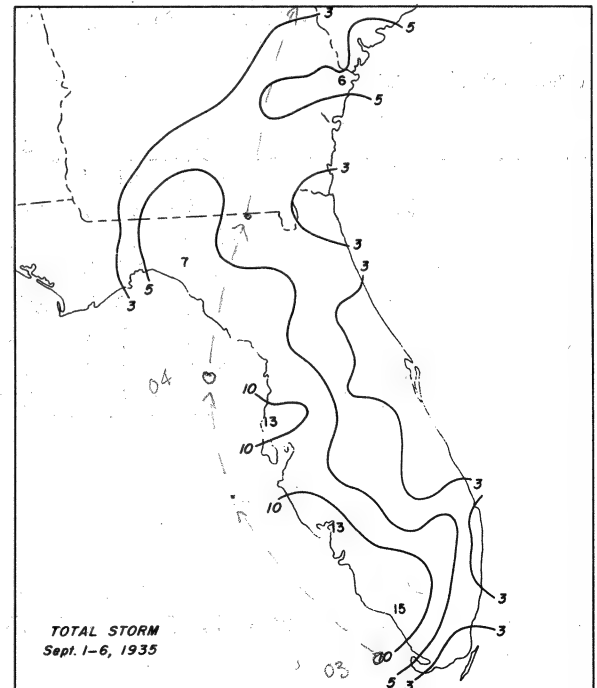
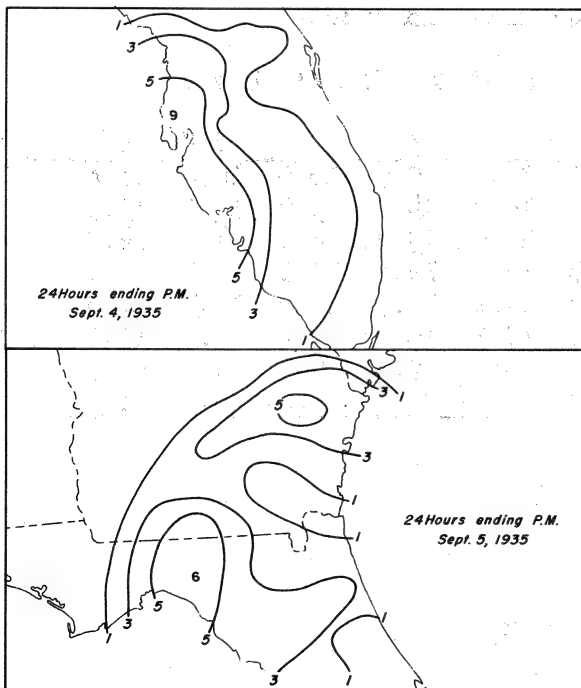
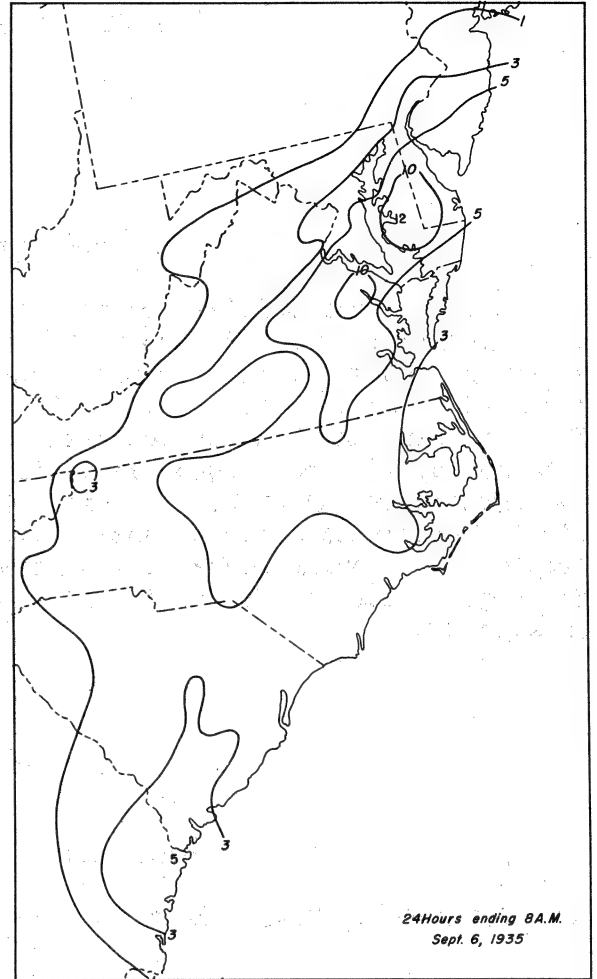
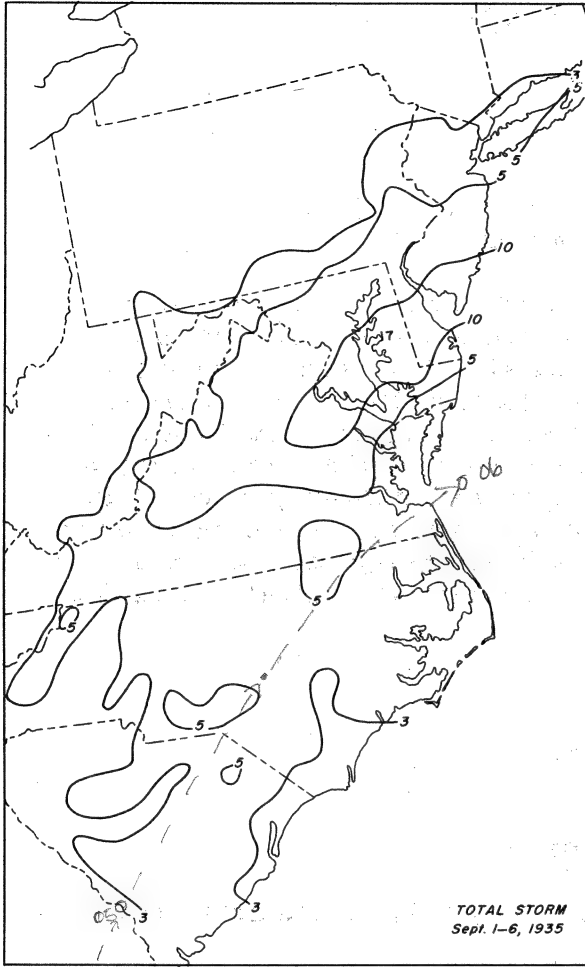
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	114
10	6.0	9.7	10.5	12.6	13.5	14.6	16.3	16.6	16.7	16.7	16.7
100	4.5	7.4	9.4	11.4	13.2	14.3	15.8	16.3	16.4	16.4	16.4
200	4.2	6.9	9.1	11.3	13.1	14.1	15.4	16.0	16.1	16.1	16.1
500	4.1	6.4	8.8	11.1	12.8	13.6	14.8	15.3	15.4	15.4	15.5
1,000	3.8	6.3	8.7	10.8	12.4	13.0	14.1	14.5	14.7	14.7	14.8
2,000	3.7	6.2	8.6	10.5	11.8	12.4	13.3	13.8	13.9	13.9	14.1
5,000	3.3	5.8	8.0	9.8	10.6	11.3	12.2	12.6	12.7	12.8	12.8
10,000	3.0	5.2	7.3	8.8	9.5	10.2	11.1	11.5	11.6	11.7	11.7
20,000	2.4	4.3	5.9	7.2	7.9	8.5	9.4	9.8	9.9	10.0	10.1
48,469	1.0	2.0	2.9	3.7	4.4	4.8	6.3	6.6	6.8	7.1	7.2

*Storm Rainfall in the U. S., SA 1-26, C. of E., U. S. Army



STORM OF AUGUST 1-3, 1915

Meteorological Summary

A small tropical disturbance formed east of Florida in an area of flat pressure gradient during the night of July 31 and moved slowly westward, entering central Florida on the morning of August 1. Intense heavy rains occurred along the east-central Florida coast in advance of the disturbance. Upon entering the Florida coast the disturbance curved northward, and another intense burst of rain occurred to the south and west of the center early on the morning of August 2. The disturbance continued northward, preceded by light-to-moderate showers, until August 4 when it consolidated with an extra-tropical Low moving eastward from the Great Lakes. Heavy rain occurred over New England due to the added influx of moist air into the extratropical Low on August 4.

Rainfall Data*

Maximum Total-Storm Amount

St. Petersburg, Fla.: 16.6 in. from 6 a.m., August 1, to midnight, August 3

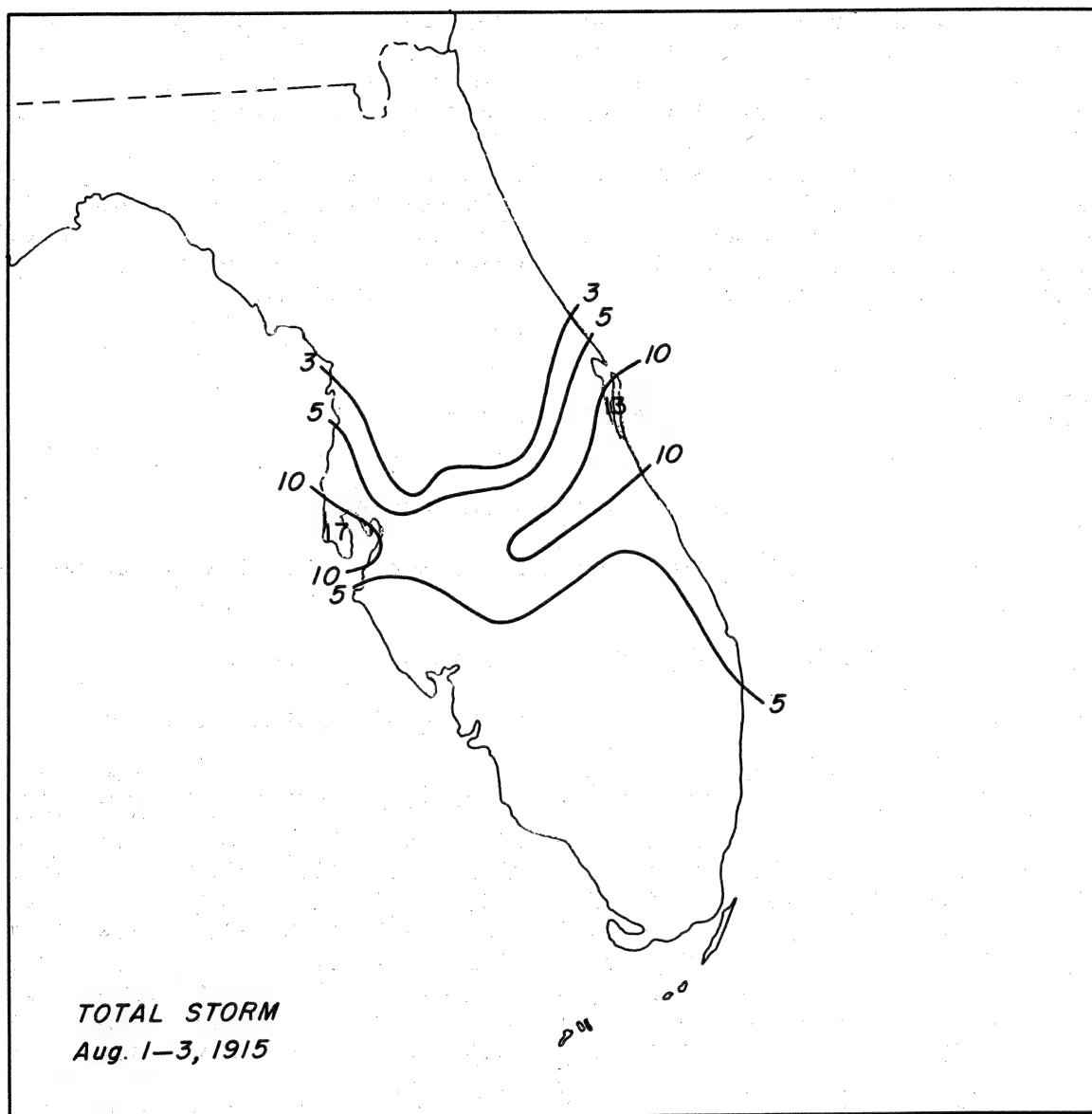
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	66
10	12.9	14.9	15.4	15.5	15.5	15.5	16.0	16.6	16.6
100	11.9	13.6	14.2	14.3	14.4	14.5	15.2	15.5	15.5
200	10.8	12.4	13.1	13.3	13.5	13.7	14.4	14.7	14.7
500	9.1	10.6	11.5	11.8	12.2	12.5	13.1	13.4	13.4
1,000	7.7	9.0	10.1	10.7	11.2	11.5	12.0	12.3	12.3
2,000	6.1	7.4	8.7	9.5	10.2	10.4	10.9	11.1	11.1
5,000	4.0	5.2	6.8	7.9	8.7	9.0	9.3	9.5	9.5
10,000	2.4	3.4	5.2	6.7	7.6	7.8	8.1	8.3	8.3

*Storm Rainfall in the U. S., SA 4-15, U. S. Army



STORM OF SEPTEMBER 14-17, 1924

Meteorological Summary

The hurricane that entered the Florida coast west of Apalachicola at about noon of September 15 was observed over the eastern Gulf on the 14th. The hurricane moved north-northeastward, crossed the Florida coast, then curved to the northeast. The hurricane passed Charleston, S. C., on the 16th and passed to sea near Norfolk, Va., early on the morning of the 17th.

Heavy showers, well in advance of the hurricane, began at Apalachicola around noon of September 13 and moved slowly ahead of the disturbance. In addition to the rains occurring with the hurricane, another area of moderate-to-heavy showers broke out as the warm, moist air in advance of the hurricane was lifted over a quasi-stationary front in the Carolinas.

Rainfall Data*

Maximum Total-Storm Amount

Beaufort, N. C.: 14.8 in. from 4 p.m., September 14, to 10 a.m., September 17

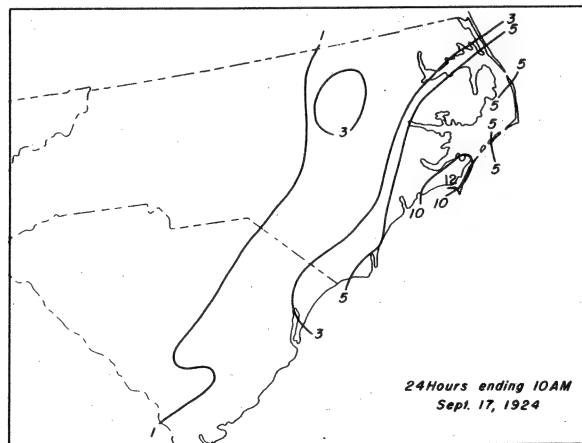
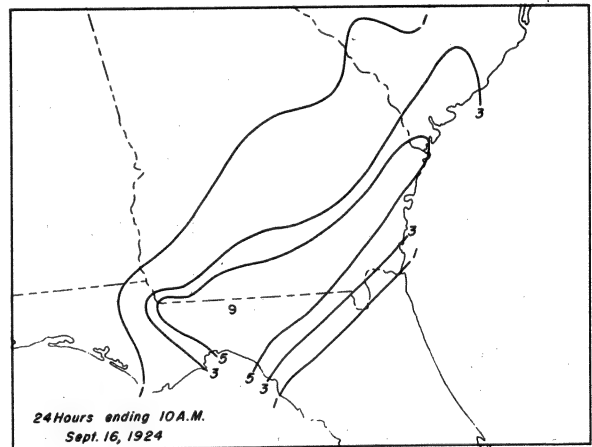
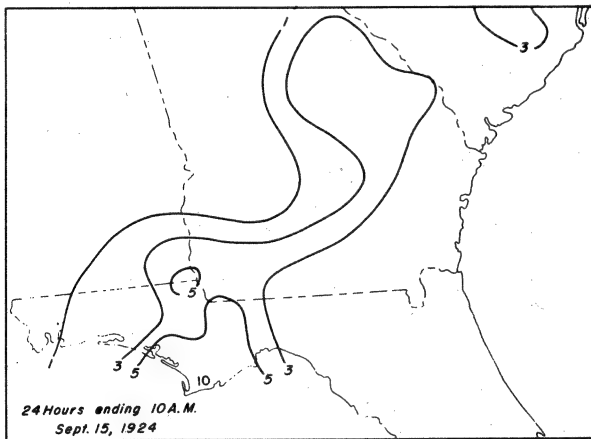
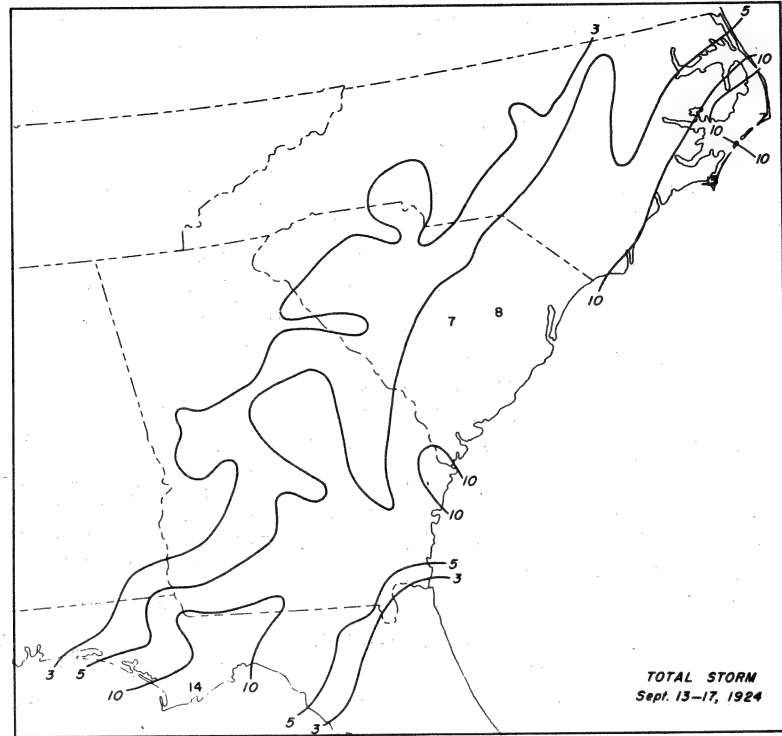
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96
10	9.6	11.8	12.5	13.2	13.5	13.9	14.0	14.4	14.8	14.8
100	7.7	11.2	12.3	12.9	13.3	13.6	13.7	14.2	14.4	14.4
200	7.1	11.0	12.1	12.6	13.1	13.3	13.5	14.0	14.2	14.2
500	6.2	10.5	11.5	12.1	12.5	12.7	12.9	13.7	13.8	13.8
1,000	5.5	9.5	10.9	11.5	11.9	12.2	12.4	13.2	13.4	13.4
2,000	4.8	8.2	9.9	10.7	11.2	11.4	11.7	12.4	12.7	12.7
5,000	3.7	6.4	8.2	9.4	9.8	10.1	10.6	11.2	11.6	11.7
10,000	2.8	5.0	6.7	8.1	8.6	9.0	9.6	10.1	10.6	10.8
20,000	2.0	3.8	5.1	6.3	6.9	7.5	8.3	8.9	9.4	9.8
50,000	1.2	2.3	3.2	4.0	4.6	5.1	6.1	7.1	7.5	8.1
100,000	0.7	1.3	1.9	2.4	2.9	3.3	4.3	5.6	6.0	6.4

*Storm Rainfall in the U. S., SA 3-16, C. of E., U. S. Army



STORM OF AUGUST 7-12, 1928

Meteorological Summary

The heavy rain that fell over the South and Middle Atlantic States from August 7 to August 12, 1928, was caused by a West-Indies hurricane which, traveling around the periphery of the Atlantic High, moved inland near Melbourne, Fla., on August 7. It continued on a north-northwesterly course until 7 p.m. of the 9th, when it recurved just east of Apalachicola, Fla., on a northeasterly course, gradually changing to east-northeast as it passed off the East Coast near Ocean City, Md., on the morning of August 12. The hurricane was attended by heavy rains, generally ahead of the storm center, throughout its course. The orographic effect of the eastern slope of the Appalachians was reflected in the general rainfall pattern which showed the axis of heaviest rain to be west of the path of the hurricane. As the storm approached the vicinity of Maryland, its northeastward progress was blocked somewhat by a High centered over the Great Lakes. The forward edge of the High, identified on the weather map as a front, was approaching extreme western Maryland early on the morning of August 11. During the 11th the High continued to move eastward, causing the hurricane to decelerate and bear eastward and serving as an additional lifting mechanism for the moist rain-producing air.

Rainfall Data*

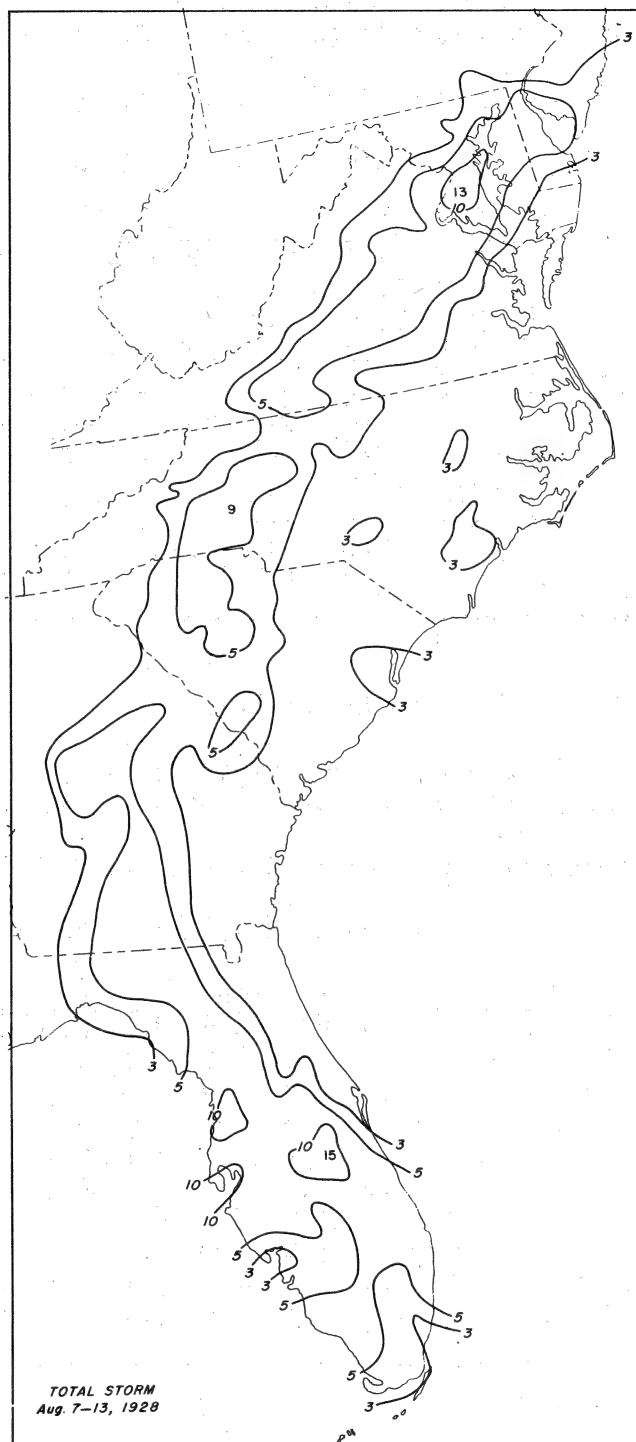
Maximum Total-Storm Amount

St. Cloud, Fla.: 14.5 in. from midnight, August 7, to midnight, August 12

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours										
	6	12	18	24	30	36	48	72	96	120	144
10	9.1	10.6	11.0	11.6	12.0	12.8	14.0	14.3	14.3	14.5	14.5
100	6.4	9.6	10.1	11.3	11.8	12.4	13.2	13.9	13.9	14.5	14.5
200	5.7	9.1	9.7	11.1	11.6	12.1	12.9	13.8	13.8	14.4	14.4
500	4.7	8.3	9.0	10.4	11.0	11.5	12.1	13.2	13.2	14.0	14.0
1000	4.0	7.3	8.2	9.5	10.1	10.5	11.1	12.2	12.2	12.8	13.0
2000	3.3	6.1	7.1	8.4	9.1	9.4	10.0	11.0	11.0	11.7	12.0
5000	2.4	4.5	5.5	6.9	7.7	7.9	8.4	9.3	9.5	10.0	10.4
10000	1.8	3.5	4.4	5.8	6.7	6.8	7.1	8.0	8.4	8.9	9.2
20000	1.3	2.4	3.1	4.0	4.7	5.2	5.8	6.7	7.3	7.7	8.0
50000	0.7	1.1	1.5	1.9	2.4	2.8	3.7	5.1	5.9	6.2	6.4

*Storm Rainfall in the U.S., SA 4-24, C. of E., U.S. Army



Rainfall Data (1)

Maximum Total-Storm Amount

Cheltenham, Md.: 13.3 in. from midnight, August 10, to midnight, August 12

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	66
Max. Station	6.4	8.8	9.8	11.5	12.2	12.8	13.0	13.3	13.3
10	6.1	8.6	9.8	11.3	12.2	12.7	13.0	13.2	13.2
100	5.2	7.8	9.4	10.6	11.8	12.2	12.6	12.8	12.8
200	4.9	7.6	9.1	10.2	11.5	11.9	12.3	12.5	12.5
500	4.5	7.1	8.5	9.5	10.8	11.2	11.7	11.9	11.9
1,000	4.2	6.7	8.0	8.8	10.1	10.6	11.0	11.3	11.3
2,000	3.9	6.2	7.4	8.0	9.3	9.8	10.3	10.5	10.5
5,000	3.4	5.1	6.3	7.0	8.0	8.5	9.1	9.3	9.3
10,000	2.8	4.2	5.4	6.0	6.8	7.3	8.1	8.3	8.3
20,000	2.1	3.3	4.3	4.9	5.5	5.9	6.7	7.0	7.0
35,000	1.4	2.4	3.3	3.9	4.3	4.7	5.2	5.6	5.6

Rainfall Data (2)

Maximum Total-Storm Amount

Settle, N. C.: 8.6 in. from 5 p.m., August 10 to 5 p.m., August 11

Maximum Average Depth of Rainfall in Inches

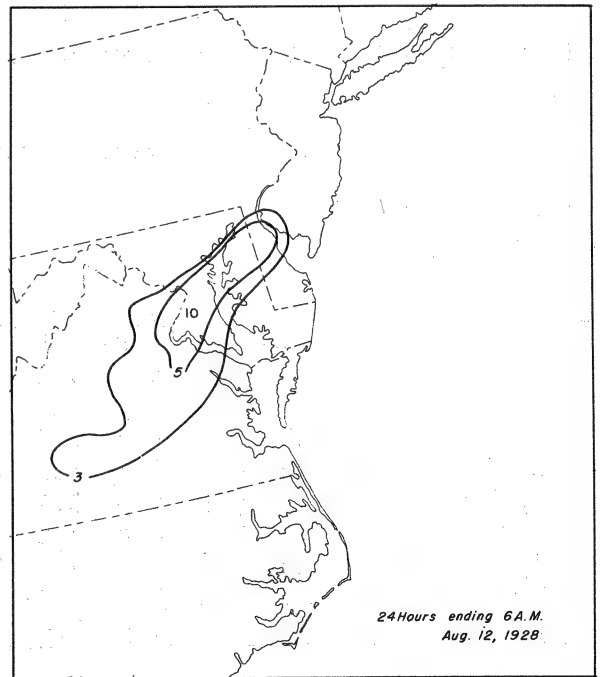
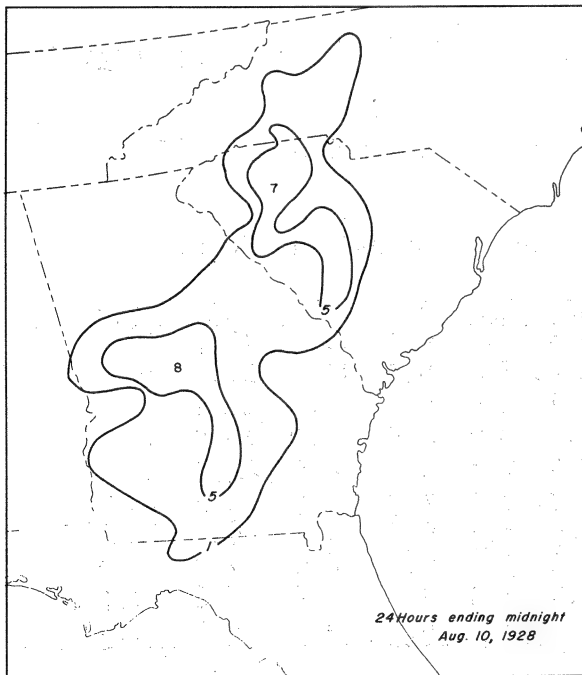
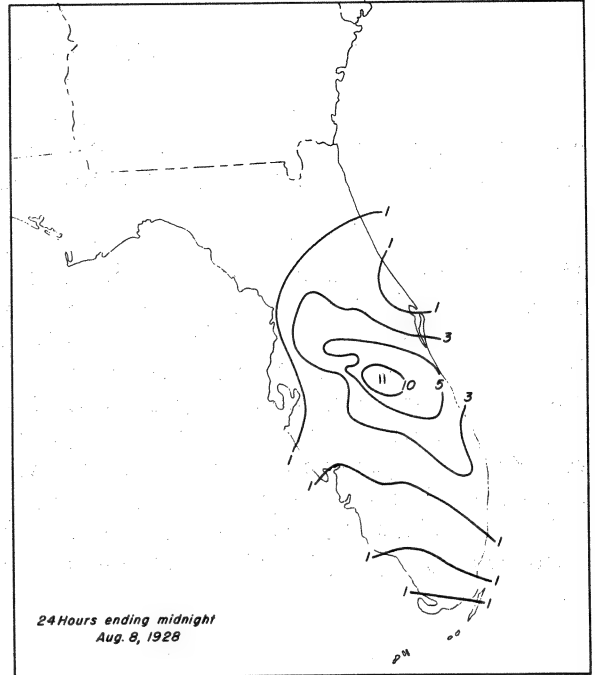
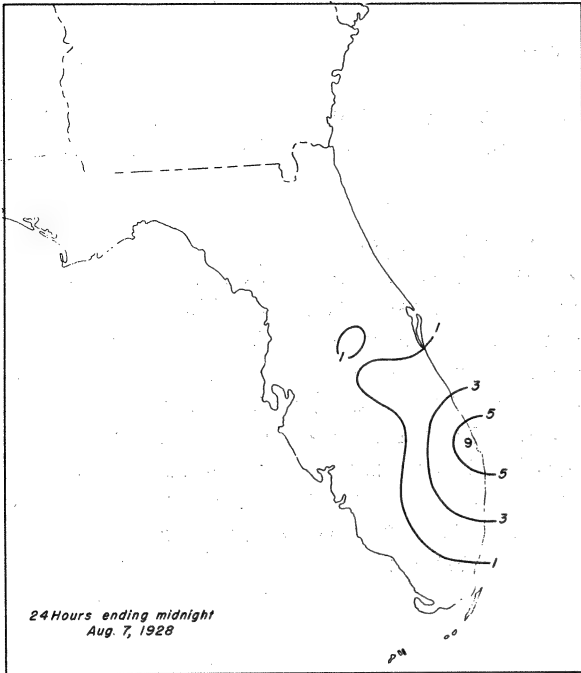
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96
10	5.0	7.2	8.0	8.6	8.6	8.6	8.6	8.6	8.6	8.6
100	4.7	7.0	7.6	7.9	8.1	8.1	8.1	8.1	8.1	8.1
200	4.6	6.8	7.4	7.7	7.9	7.9	7.9	7.9	7.9	7.9
500	4.4	6.5	7.0	7.3	7.5	7.5	7.5	7.6	7.6	7.6
1,000	4.2	6.2	6.7	7.0	7.2	7.2	7.2	7.3	7.3	7.3
2,000	3.9	5.8	6.4	6.6	6.8	6.8	6.8	6.9	7.0	7.0
5,000	3.4	5.0	5.7	6.0	6.2	6.2	6.2	6.3	6.5	6.5
10,000	2.9	4.3	4.9	5.3	5.4	5.5	5.5	5.7	5.8	5.9
20,000	2.1	3.3	3.9	4.4	4.5	4.7	4.7	4.8	4.9	5.0
24,000	1.8	3.0	3.6	4.1	4.3	4.4	4.4	4.5	4.6	4.7

(1) Storm Rainfall in the U. S. NA 1-18, C. of E., U. S. A.

(2) Storm Rainfall in the U. S. SA 2-12, C. of E., U.S.A.



STORM OF SEPTEMBER 16-21, 1938

Meteorological Summary

The rainfall of this period was associated with the hurricane that entered the Connecticut coast on the afternoon of September 21**, and other synoptic features of great importance.'

The Atlantic subtropical High which had moved eastward to the central Atlantic was weakened along its western edge by a series of waves that moved eastward out of an extensive upper trough over the Great Lakes. The resultant circulation brought a steady flow of warm, moist air over the Atlantic Seaboard into the warm sectors of eastward-moving waves during the entire period. This produced light-to-moderate showers along the East Coast from the Carolinas northward until September 20 when the hurricane moved into the forward portion of the sharp upper trough that was moving eastward from the Great Lakes. The heaviest rains began at this time in North Carolina and spread northeastward into New England. The rains ceased along the Carolina and Virginia coasts as drier air flowed into that region on the 21st.

Rainfall Data*

Maximum Total-Storm Amount

Belhaven, N.C.: 14.1 in. from 6 p.m., September 16, to 6 p.m., September 20

Maximum Average Depth of Rainfall in Inches

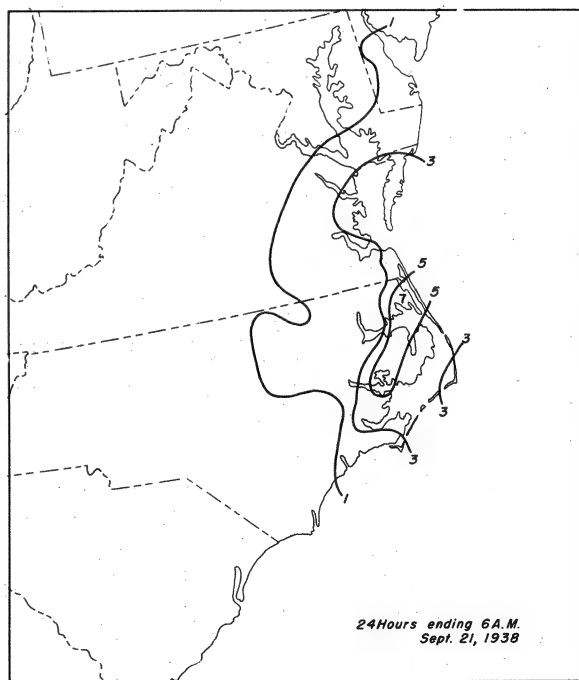
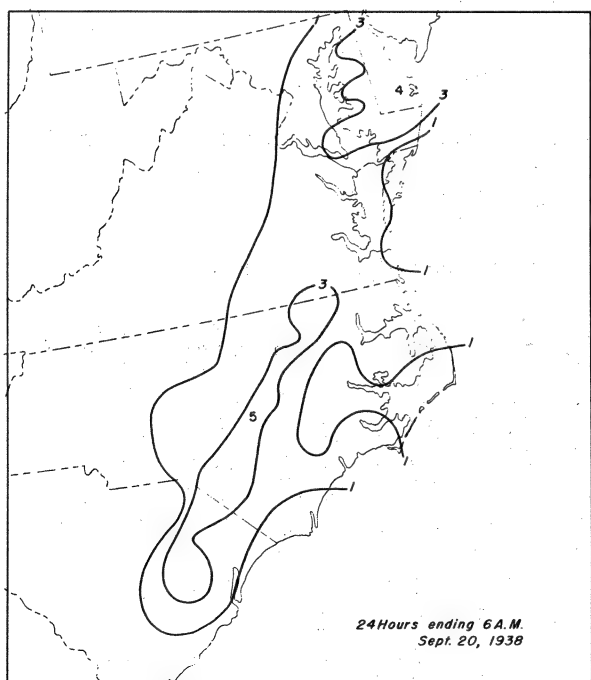
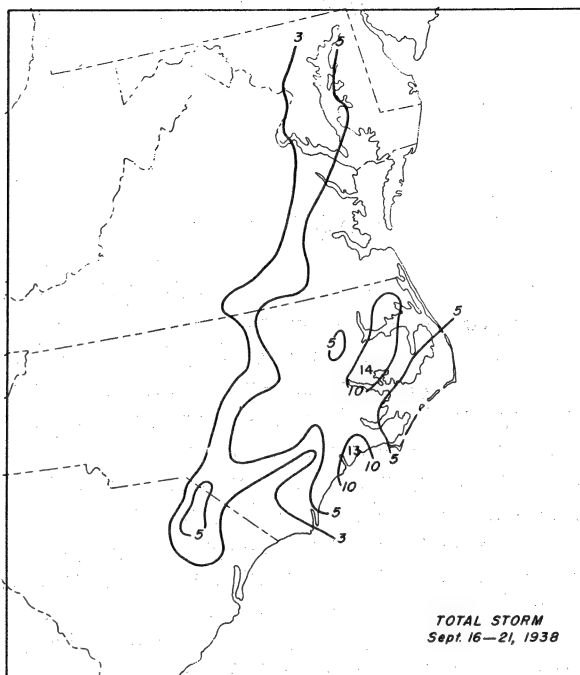
Area in
Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	132
10	5.0	6.4	6.8	8.2	9.0	9.3	9.5	9.9	11.0	11.7	14.1
100	3.9	5.6	6.6	7.3	7.9	8.4	8.8	9.2	10.0	11.4	13.4
200	3.5	5.4	6.5	7.0	7.6	8.1	8.6	9.0	9.6	11.2	13.2
500	3.0	5.0	6.2	6.5	7.1	7.7	8.2	8.6	9.0	10.9	12.6
1,000	2.7	4.6	5.8	6.1	6.6	7.3	7.8	8.2	8.5	10.5	12.1
2,000	2.3	4.2	5.3	5.7	6.0	6.7	7.3	7.7	7.9	9.8	11.4
5,000	1.8	3.5	4.4	4.8	5.2	5.9	6.5	6.8	7.0	8.7	10.2
10,000	1.4	2.8	3.6	4.1	4.5	5.2	5.8	6.2	6.3	7.7	9.0
20,000	1.0	2.1	2.8	3.2	3.8	4.4	5.0	5.5	5.6	6.6	7.7
40,000	0.7	1.3	1.9	2.3	3.1	3.7	4.3	4.8	4.9	5.5	6.4

*Storm Rainfall in the U. S., SA 5-16, C. of E., U. S. Army

**See page 268, North Atlantic Section



STORM OF AUGUST 13-17, 1928

Meteorological Summary

The tropical disturbance which produced the rain of August 13-17 was first observed in the extreme eastern Caribbean on August 8. It moved west-northwestward to a position north of Key West, Fla., on August 13. It then curved north-northwestward and passed inland somewhat east of Apalachicola, Fla., on the morning of August 14. The disturbance continued on this path until it reached east-central Alabama on the morning of August 15, when it shifted north-northeastward, passing through northern Georgia on the afternoon of August 16. Although the rainfall associated with the tropical disturbance as it entered the mainland was heavy, orographic lifting contributed to the heaviest amounts that occurred in the mountainous regions of Georgia, South Carolina, North Carolina, and Virginia during the passage of the disturbance. By afternoon of August 17, the disturbance had moved to West Virginia, and the associated rainfall became light, with only a few scattered showers occurring in the moist unstable air.

Rainfall Data*

Maximum Total-Storm Amount

Caesar's Head, S.C.: 13.5 in. from 5 a.m., August 14, to 5 p.m., August 16

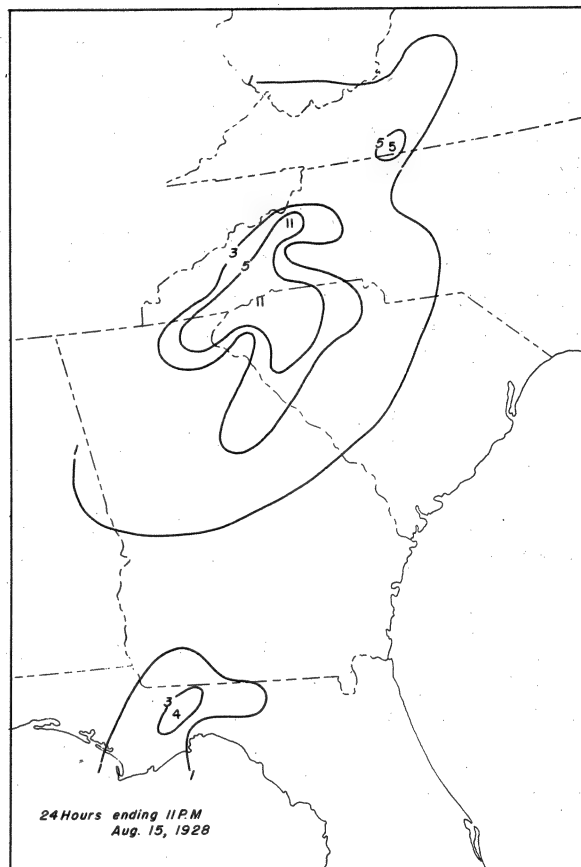
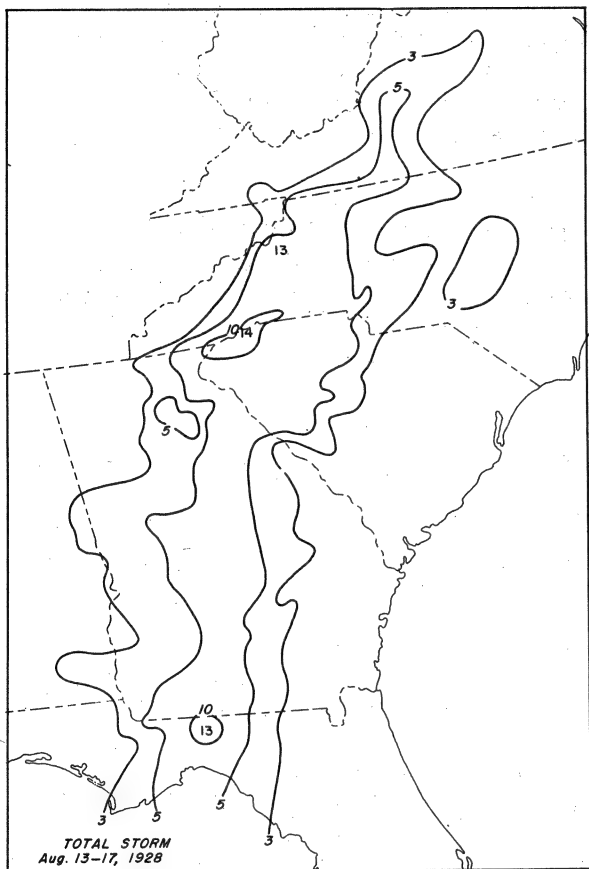
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	102
10	6.0	9.9	10.9	11.8	12.0	12.4	13.1	13.3	13.5	13.5
100	5.4	9.1	10.4	11.0	11.2	11.4	12.3	12.5	13.0	13.2
200	5.1	8.8	10.1	10.7	10.9	11.1	11.9	12.1	12.7	12.9
500	4.6	8.1	9.6	10.1	10.3	10.5	11.2	11.5	12.0	12.3
1,000	4.2	7.4	8.9	9.4	9.7	9.9	10.4	10.8	11.3	11.6
2,000	3.8	6.5	8.0	8.6	9.0	9.2	9.7	10.1	10.5	10.8
5,000	3.2	5.3	6.7	7.3	7.8	8.1	8.6	8.9	9.3	9.6
10,000	2.7	4.4	5.6	6.3	6.7	7.2	7.7	8.1	8.4	8.6
20,000	2.2	3.5	4.6	5.2	5.7	6.2	6.8	7.2	7.4	7.6
50,000	1.4	2.3	3.0	3.6	4.1	4.8	5.4	5.8	5.9	6.2
77,300	1.0	1.7	2.3	2.9	3.4	3.9	4.5	4.9	5.0	5.3

*Storm Rainfall in the U. S., SA 2-13, C. of E., U. S. Army



STORM OF SEPTEMBER 16-19, 1928

Meteorological Summary

A hurricane of Cape Verde origin passed inland near West Palm Beach, Fla., at 7 p.m. on September 16 and moved northwestward over Lake Okeechobee east of Bartow about 7 a.m. on September 17. The hurricane then curved north-northeastward and passed west of Jacksonville at 1 a.m. on September 18. Moving parallel to the Coast and turning north-northwestward over east-central North Carolina at about 8 a.m. on September 19, the hurricane then proceeded northward and dissipated over west-central Pennsylvania on September 20.

Heavy rains preceded the hurricane in its passage, with the heaviest rains occurring in eastern Georgia and eastern South Carolina as the storm moved parallel to the Coast. Rains diminished and ended to the rear of the disturbance.

Rainfall Data*

Maximum Total-Storm Amount

Darlington, S.C.: 12.6 in. from 6 p.m., September 17, to noon, September 19

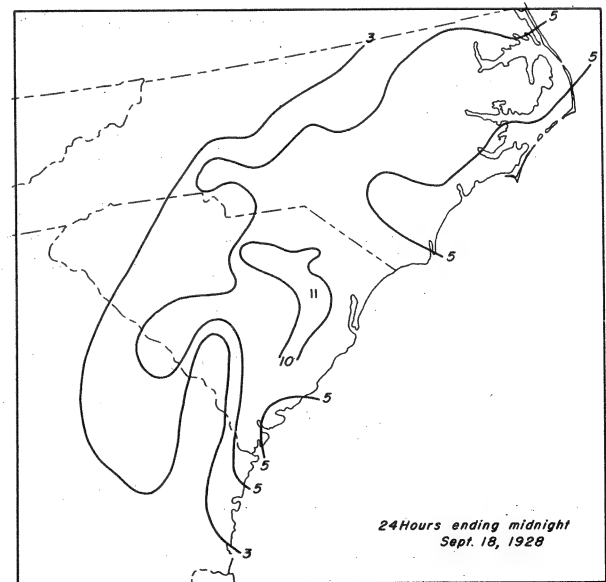
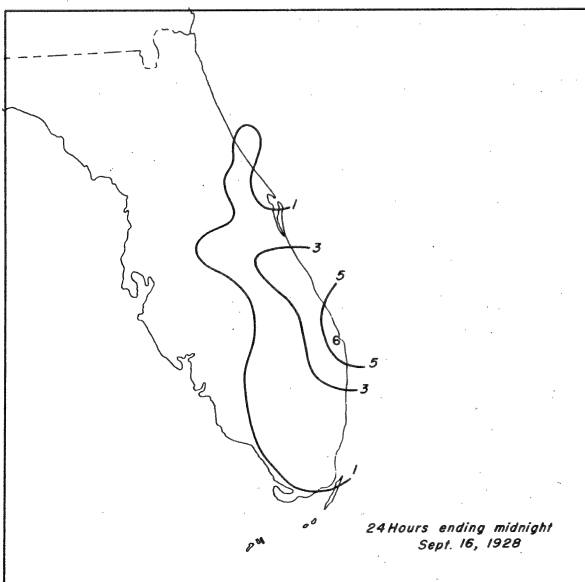
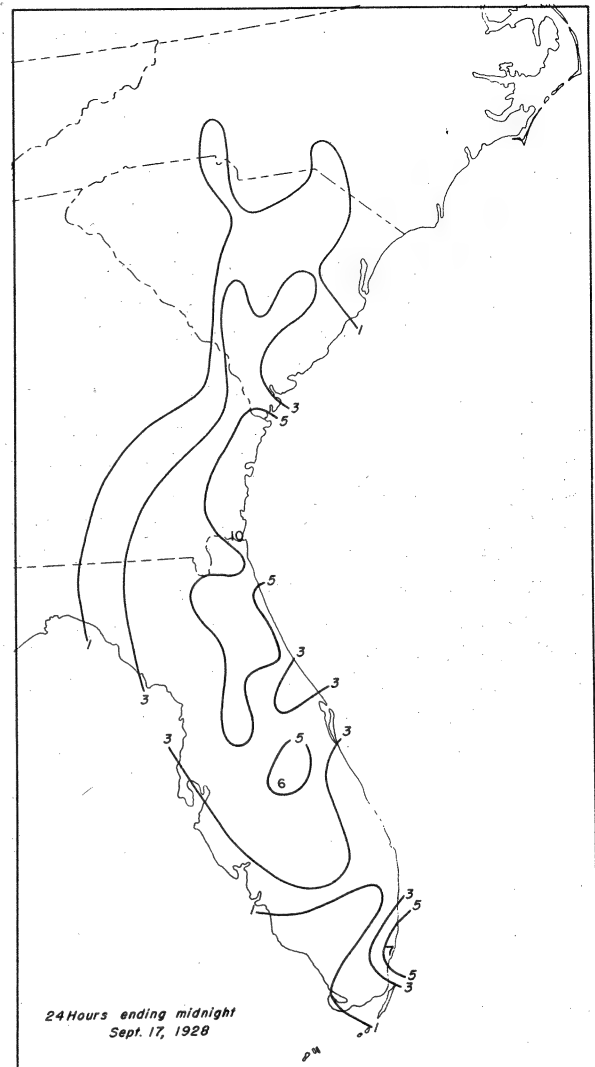
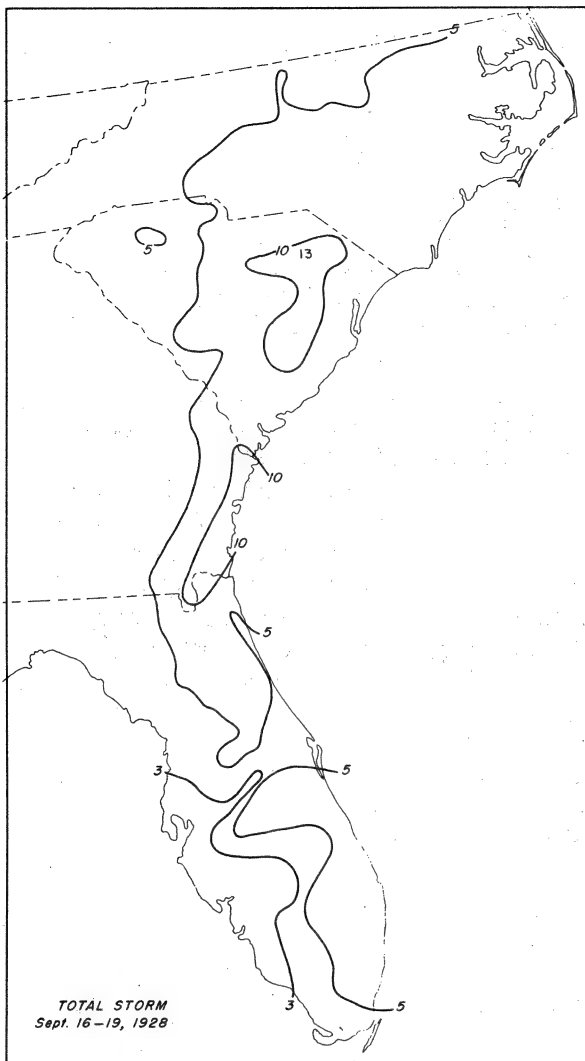
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96
10	7.0	10.2	11.0	11.6	12.0	12.2	12.6	12.6	12.6	12.6
100	5.9	9.4	10.4	11.4	11.8	12.1	12.4	12.4	12.4	12.4
200	5.5	9.2	10.2	11.2	11.8	12.0	12.4	12.4	12.4	12.4
500	5.0	8.8	9.8	11.0	11.5	11.8	12.2	12.2	12.2	12.2
1,000	4.6	8.4	9.5	10.8	11.3	11.6	12.0	12.0	12.0	12.0
2,000	4.2	8.0	9.2	10.3	10.9	11.3	11.6	11.6	11.6	11.6
5,000	3.7	7.1	8.3	9.4	10.3	10.6	10.9	11.0	11.0	11.0
10,000	3.2	6.1	7.4	8.5	9.4	9.8	10.2	10.4	10.4	10.4
20,000	2.7	5.0	6.3	7.3	8.2	8.8	9.3	9.5	9.6	9.6
50,000	2.0	3.6	4.8	5.6	6.3	6.9	7.6	7.8	8.0	8.0
100,000	1.4	2.4	3.3	3.9	4.6	5.0	5.8	6.2	6.5	6.6

*Storm Rainfall in the U. S., SA 2-15, C. of E., U. S. Army



STORM OF SEPTEMBER 16-19, 1901

Meteorological Summary

The tropical disturbance that entered the Gulf Coast just east of Mobile, Ala., on the afternoon of September 17 was first detected in the central Gulf of Mexico early on the morning of September 17.

The rainfall associated with the actual tropical disturbance was light to moderate, occurring immediately ahead and to the right of the disturbance. The principal heavy rainfall over the Southeastern States occurred after the tropical disturbance moved inland into an extratropical trough elongated northeast-southwest from Norfolk, Va., to Macon, Ga. The tropical disturbance formed a wave in the trough which moved eastward then northward, spreading heavy rains to its left in the lee of the Appalachians from southeastern Alabama to northeastern North Carolina during the night of September 17. Rain continued northward until September 18, when the cold dry air to the rear of the trough spread southward over the Southeastern States.

Rainfall Data*

Maximum Total-Storm Amount

Americus, Ga.: 11.4 in. from 1 p.m. CST, September 16, to 1 a.m. CST, September 18

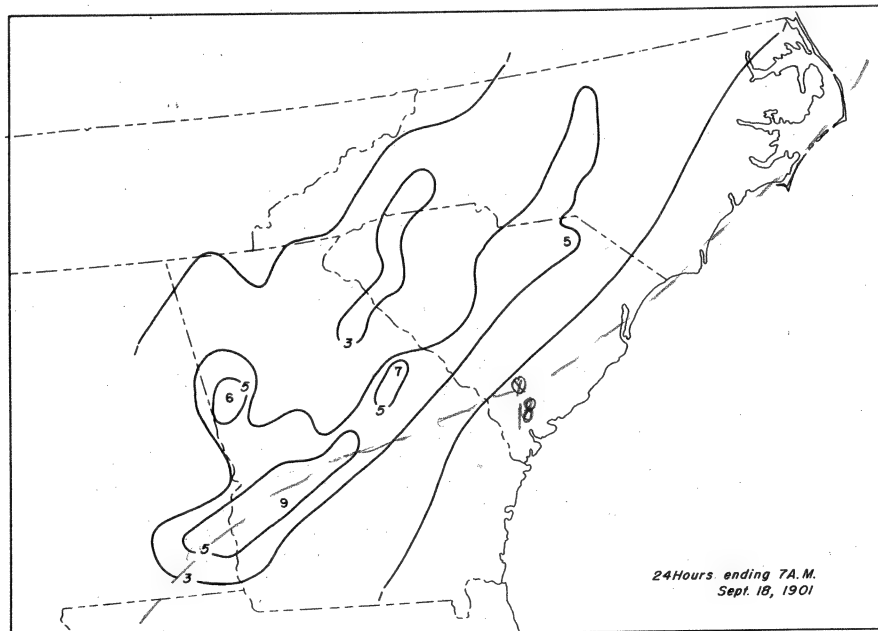
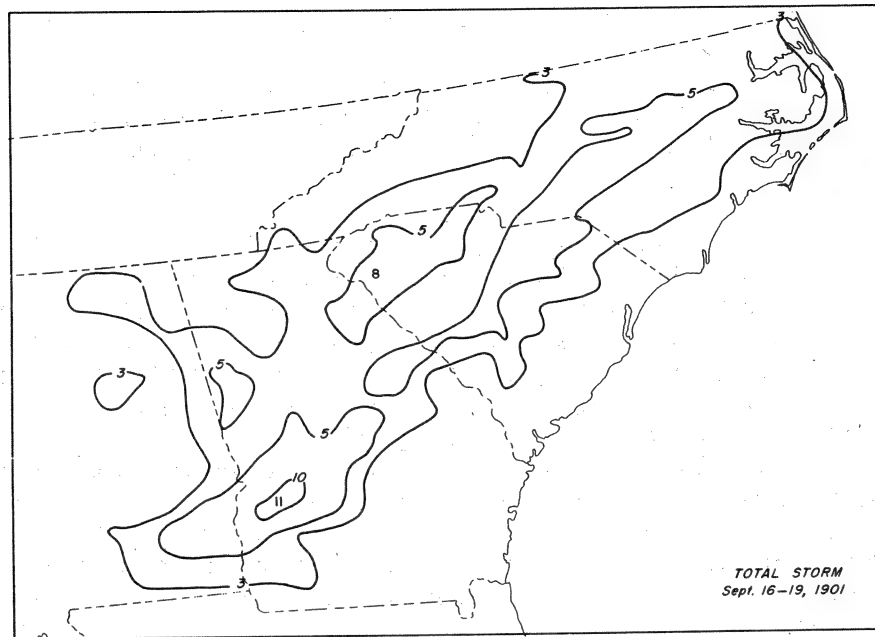
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	66
10	5.3	8.6	8.8	8.8	9.8	11.2	11.4	11.4
100	5.0	8.3	8.6	8.6	9.4	10.7	11.2	11.2
200	4.9	8.2	8.6	8.6	9.3	10.5	11.0	11.0
500	4.7	7.9	8.5	8.5	9.1	10.1	10.6	10.6
1,000	4.4	7.7	8.2	8.4	8.9	9.5	10.2	10.2
2,000	4.1	7.1	7.7	8.1	8.4	8.8	9.5	9.5
5,000	3.4	5.9	6.8	7.2	7.4	7.8	8.4	8.6
10,000	2.9	4.9	5.8	6.2	6.4	6.9	7.5	7.7
20,000	2.4	4.0	4.7	5.2	5.4	6.0	6.7	6.8
50,000	1.6	2.6	3.3	3.8	4.1	4.7	5.4	5.5
95,000	0.9	1.7	2.3	2.8	3.2	3.5	4.1	4.6

*Storm Rainfall in the U. S., SA 2-5, C. of E., U.S.A.



STORM OF JULY 28-31, 1908

Meteorological Summary

The heavy rains over eastern North Carolina during the period of July 28-31, 1908, were caused by a tropical disturbance of moderate intensity that moved across the North Carolina coast northeast of Wilmington during the night of July 30.

The tropical disturbance was first evident on July 27 as a Low over the Atlantic some distance east of Florida. The Low gradually deepened and on July 29 began to move northward toward the Carolina coast. Scattered showers and thundershowers occurred during this period over North and South Carolina increasing in number and intensity with the approach of the disturbance. Continuing its northward progress, the Low moved inland across the Coast northeast of Wilmington on the night of July 31. By this time precipitation had become generally heavy over eastern North Carolina and northeastern South Carolina. Rainfall intensity dropped off sharply after noon of July 31 as the disturbance moved out to sea. During the entire period, a high-pressure area persisted over the North Atlantic coast and seemingly acted as a block for further northward movement of the storm on July 31.

Rainfall Data*

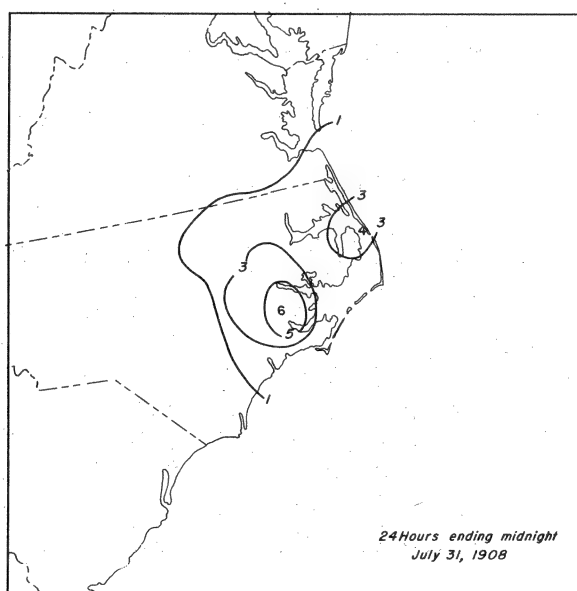
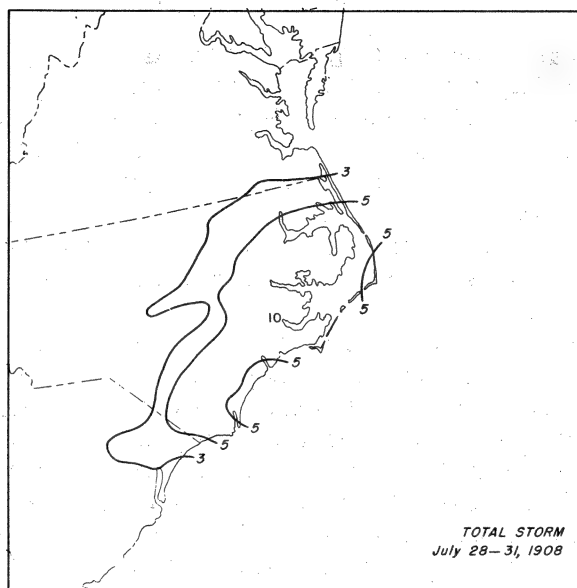
Maximum Total-Storm Amount

New Bern, N.C.: 10.2 in. from 6 a.m., July 29, to midnight, July 31

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours								
	6	12	18	24	30	36	48	60	72
10	4.2	6.0	6.5	6.7	7.3	7.8	9.3	10.1	10.2
100	4.1	5.8	6.3	6.5	7.0	7.5	8.9	9.7	10.0
200	4.0	5.7	6.2	6.4	6.9	7.4	8.8	9.6	9.8
500	3.8	5.5	6.0	6.2	6.7	7.1	8.5	9.3	9.5
1,000	3.5	4.9	5.4	5.9	6.2	6.8	8.1	8.8	9.2
2,000	3.0	4.2	4.9	5.5	5.8	6.3	7.6	8.3	8.8
5,000	2.3	3.4	4.2	4.7	5.1	5.7	6.9	7.5	8.1
10,000	1.8	2.7	3.4	4.0	4.5	5.2	6.3	6.9	7.4
20,000	1.2	1.9	2.6	3.2	3.8	4.3	5.3	5.8	6.2
29,000	0.8	1.5	2.0	2.7	3.2	3.5	4.4	4.8	5.1

*Storm Rainfall in the U. S., SA 5-23, C. of E., U. S. Army



STORM OF SEPTEMBER 5-9, 1934

Meteorological Summary

The tropical disturbance that passed over Long Island, N. Y.,** into western Connecticut during the afternoon and night of September 8 was first noted north of the Windward Islands on September 5. It moved eastward until September 7, when it consolidated with a weak quasi-stationary front that had moved out of a rather deep upper trough west of the Appalachians. The tropical disturbance then curved north-northeastward passing just east of Cape Hatteras then recurved northward passing inland over Long Island and western Connecticut on the afternoon and night of September 9.

The rainfall from the disturbance occurred in three distinct bursts from the Carolinas northward into New England. Moderate showers were evident in the Carolinas and Virginia during the day and night of September 7 as the warm moist air from the disturbance was lifted over a quasi-stationary front. A second but lighter burst occurred early on September 8 along the Carolina-Virginia coast as the disturbance moved northward towards New England. The third and final burst occurred directly ahead and to the right of the center as it crossed the New England coast.

Rainfall Data*

Maximum Total-Storm Amount

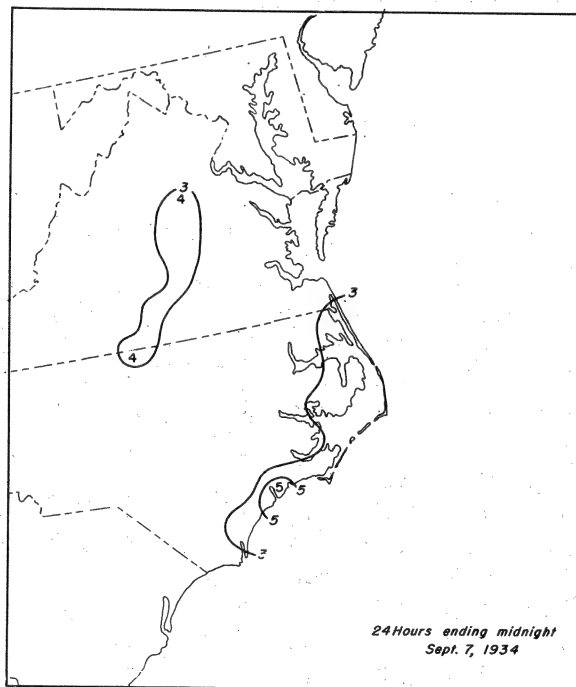
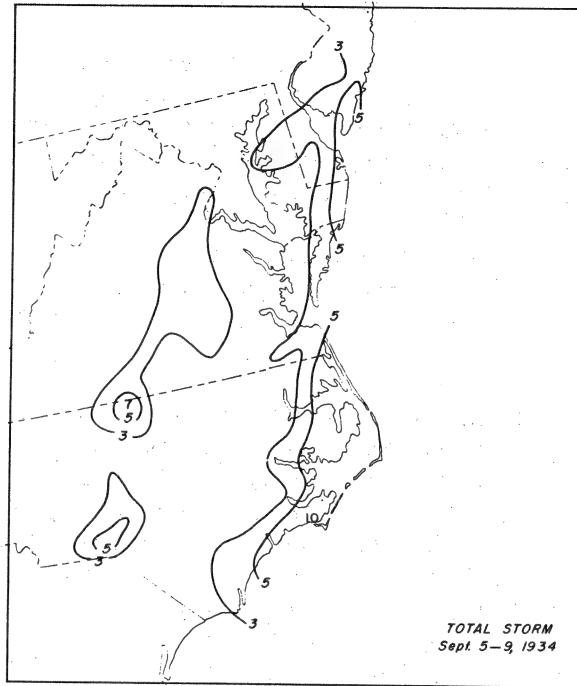
Beaufort, N.C.: 9.6 in. from midnight, September 5, to noon, September 8

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours									
	6	12	18	24	30	36	48	60	72	108
10	4.0	5.2	7.5	7.7	7.9	7.9	8.7	9.6	9.6	9.6
100	3.7	5.2	7.3	7.6	7.8	7.8	8.7	9.5	9.5	9.5
200	3.6	5.1	7.2	7.6	7.8	7.8	8.6	9.4	9.4	9.4
500	3.5	5.0	7.0	7.5	7.7	7.7	8.5	9.3	9.3	9.3
1,000	3.3	4.9	6.8	7.3	7.5	7.6	8.4	9.0	9.0	9.0
2,000	3.1	4.7	6.4	7.0	7.3	7.4	8.2	8.7	8.7	8.7
5,000	2.6	4.2	5.8	6.4	6.7	6.8	7.5	7.9	7.9	7.9
10,000	2.1	3.6	4.9	5.4	5.7	5.9	6.4	6.6	6.7	6.7
19,000	1.4	2.3	3.0	3.4	3.7	3.9	4.1	4.4	4.6	4.6

*Storm Rainfall in the U. S., SA 5-12, C. of E., U. S. Army

**See page 291, North Atlantic Section



STORM OF JULY 29-AUGUST 2, 1936

Meteorological Summary

The rainfall for this period was associated with two major meteorological events: the southward advance of a cold front over the eastern United States and the movement of a tropical disturbance northwestward along the west coast of Florida and inland over western Florida and Alabama. The heaviest rainfall was near the path of the hurricane.

On the morning of July 29 a deep mass of warm moist air covered the Eastern States from Florida to Pennsylvania. Scattered prefrontal showers were occurring in Virginia and North Carolina as the polar air moved southward.

The first hurricane rain in the storm area began near Apalachicola, Fla., on the morning of July 30 as the hurricane approached the coast. Heavy rains fell over western Florida, southern Alabama, and Georgia from evening of July 30 to morning of August 1, the rain area gradually spreading northward as the disturbance moved inland. Meanwhile, with the advance of the cold front, heavy prefrontal thunderstorms continued to move southward over the Carolinas and Georgia, followed by frontal rains as the tropical air was lifted over the wedge of cold air. The two rain areas thus approaching each other finally merged on the evening of July 31 and frontal rain became indistinguishable from hurricane rain. The last heavy rain occurred in central Georgia on August 1. By morning of August 2, with the dissipation of the hurricane over central Alabama and the movement of the cold front south of Florida, the rain ended, except for scattered instability showers which continued through August 3.

Rainfall Data*

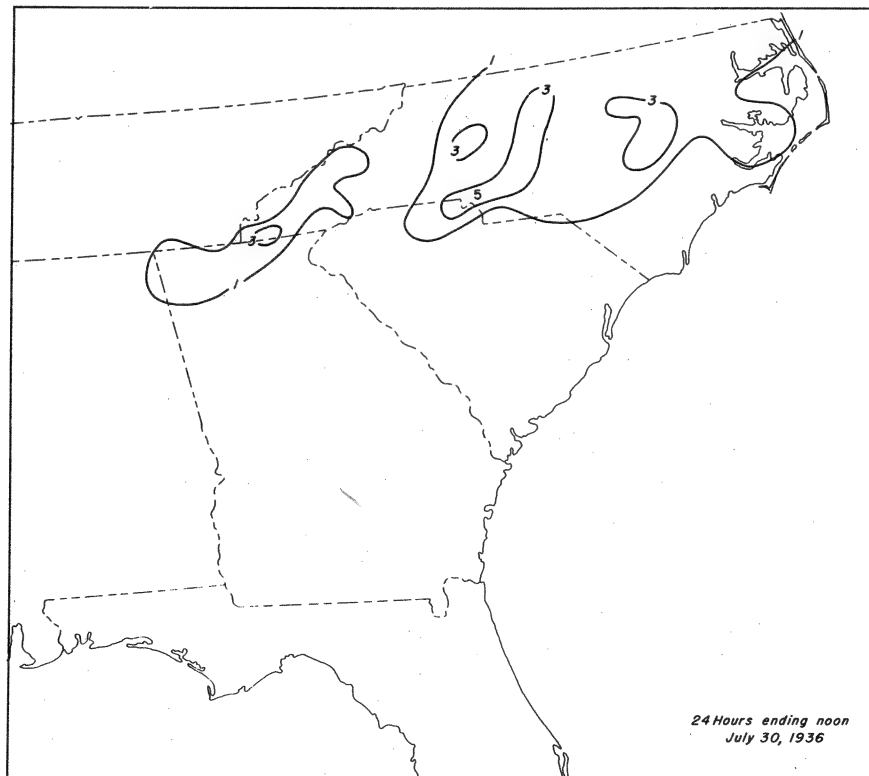
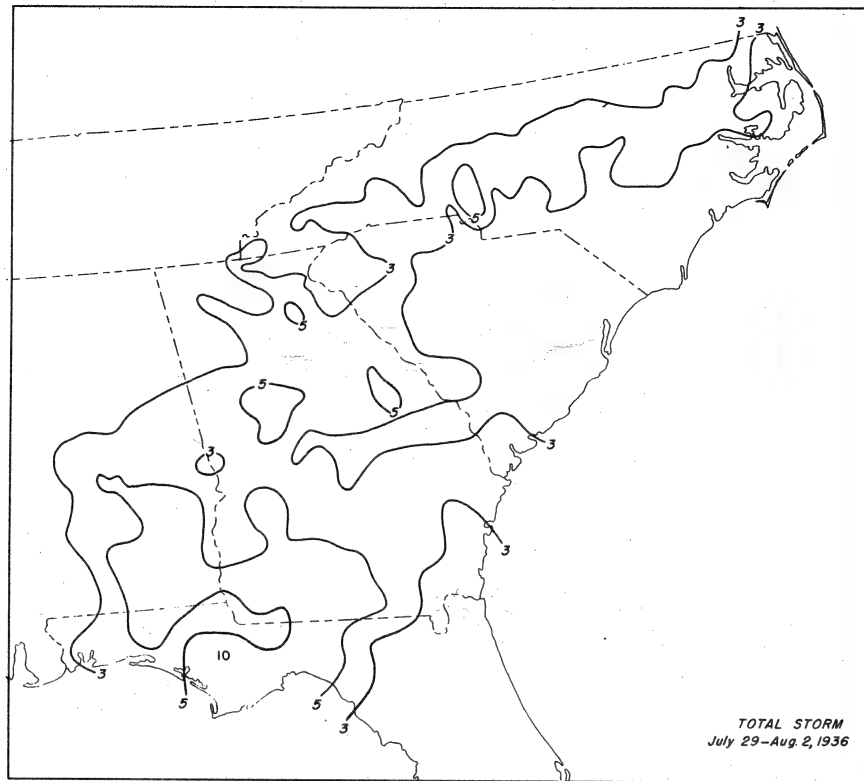
Maximum Total-Storm Amount

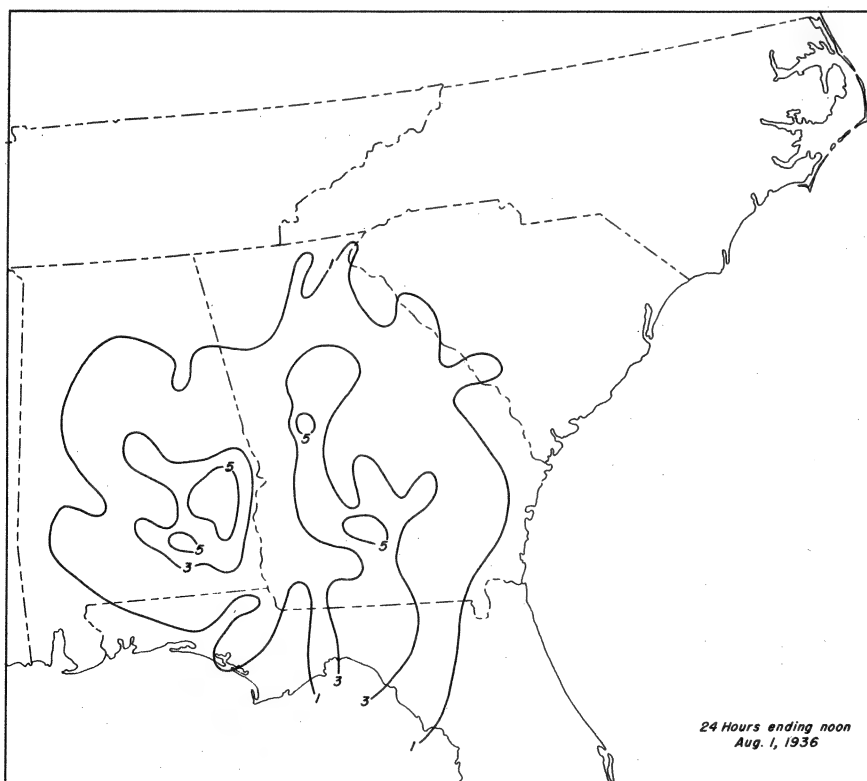
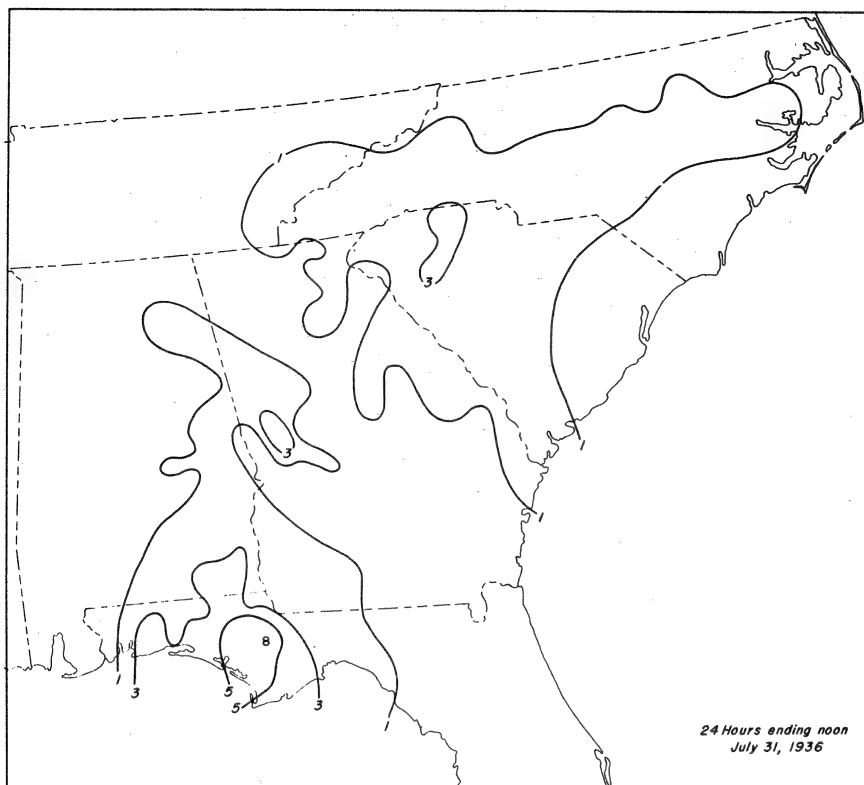
Blountstown, Fla.: 9.6 in. from midnight, July 30, to 6 p.m., August 1

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours									
	6	12	18	24	30	36	48	60	72	96
10	4.5	6.6	7.2	7.9	8.5	8.7	9.1	9.6	9.6	9.6
100	3.8	5.8	6.8	7.5	8.2	8.4	8.7	9.2	9.2	9.2
200	3.5	5.5	6.6	7.3	8.0	8.2	8.5	9.0	9.0	9.0
500	3.3	5.2	6.4	7.1	7.7	7.9	8.2	8.7	8.7	8.7
1,000	3.0	4.9	6.2	6.7	7.4	7.6	7.8	8.3	8.3	8.3
2,000	2.8	4.7	5.9	6.4	7.0	7.2	7.5	7.9	7.9	7.9
5,000	2.5	4.2	5.3	5.8	6.3	6.6	6.9	7.3	7.3	7.3
10,000	2.2	3.8	4.8	5.2	5.8	6.1	6.4	6.6	6.7	6.8
20,000	1.9	3.2	4.2	4.7	5.2	5.3	5.7	6.0	6.1	6.1
50,000	1.3	2.3	3.2	3.7	4.1	4.3	4.5	4.9	5.1	5.2
100,000	0.6	1.2	1.7	2.3	2.6	2.9	3.3	3.8	4.1	4.4

*Storm Rainfall in the U. S., SA 3-22, C. of E., U. S. Army





STORM OF OCTOBER 15-18, 1932

Meteorological Summary

The storm that produced the heavy rains of October 15 to October 18 over the Carolinas and Virginia had entered the Louisiana** coast as a weak tropical disturbance on the 15th. Although the tropical disturbance had developed extratropical characteristics by the time it reached the Carolinas, the storm has been included to show the result of the orographic lifting of the moist, tropical air brought into the area by the decaying tropical disturbance.

Rainfall Data*

Maximum Total-Storm Amount

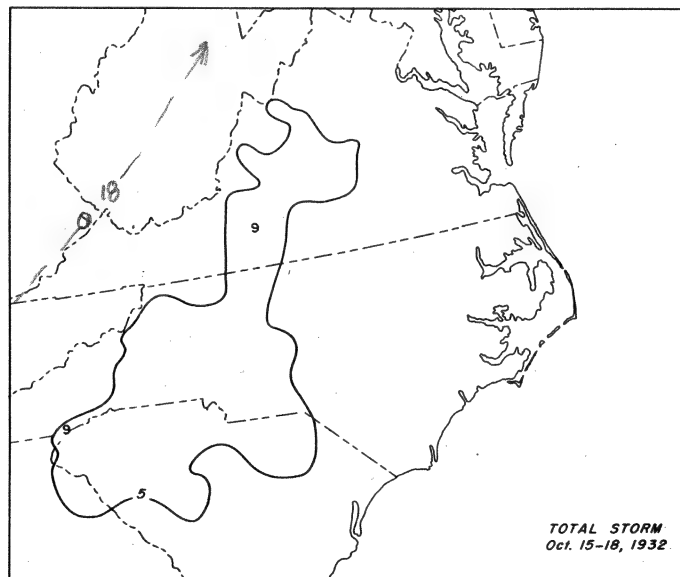
Rock House, N. C.: 9.3 in. from 6 p.m., October 15, to 6 a.m., October 17

Maximum Average Depth of Rainfall in Hours

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72
10	3.9	5.8	7.1	8.1	8.8	9.3	9.3	9.3	9.3
100	3.5	5.4	6.9	7.8	8.5	8.9	8.9	9.0	9.0
200	3.3	5.3	6.8	7.7	8.4	8.8	8.8	8.8	8.9
500	3.1	5.1	6.7	7.6	8.3	8.6	8.7	8.7	8.7
1,000	3.0	5.0	6.5	7.4	8.1	8.4	8.5	8.5	8.5
2,000	2.8	4.8	6.3	7.2	7.9	8.2	8.3	8.3	8.3
5,000	2.5	4.5	5.9	6.9	7.5	7.8	7.9	7.9	8.0
10,000	2.3	4.1	5.5	6.4	7.1	7.4	7.5	7.5	7.5
20,000	1.9	3.6	4.9	5.8	6.5	6.8	6.9	7.0	7.0
50,000	1.3	2.5	3.5	4.4	5.0	5.4	5.6	5.8	5.8



*Storm Rainfall in the U. S., SA 5-11A, C. of E., U. S. Army

**See page 40, Gulf of Mexico Section

STORM OF SEPTEMBER 1-7, 1950 (Easy)

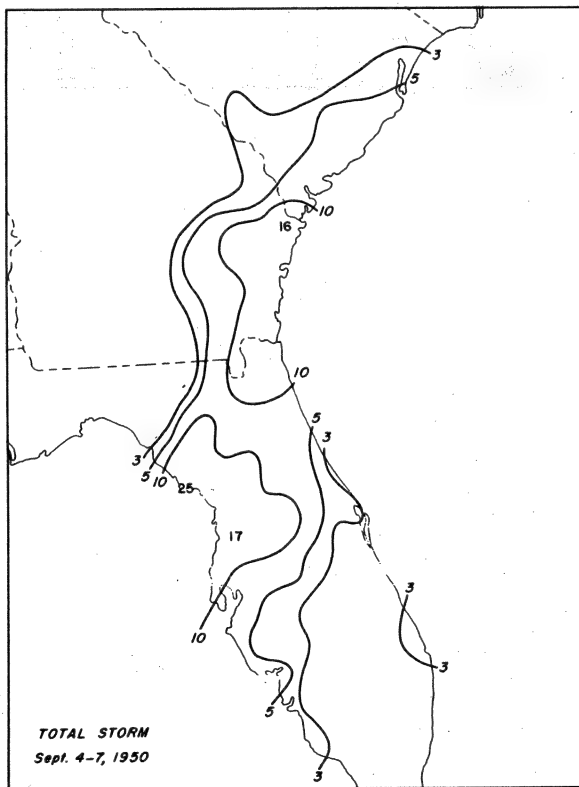
Meteorological Summary

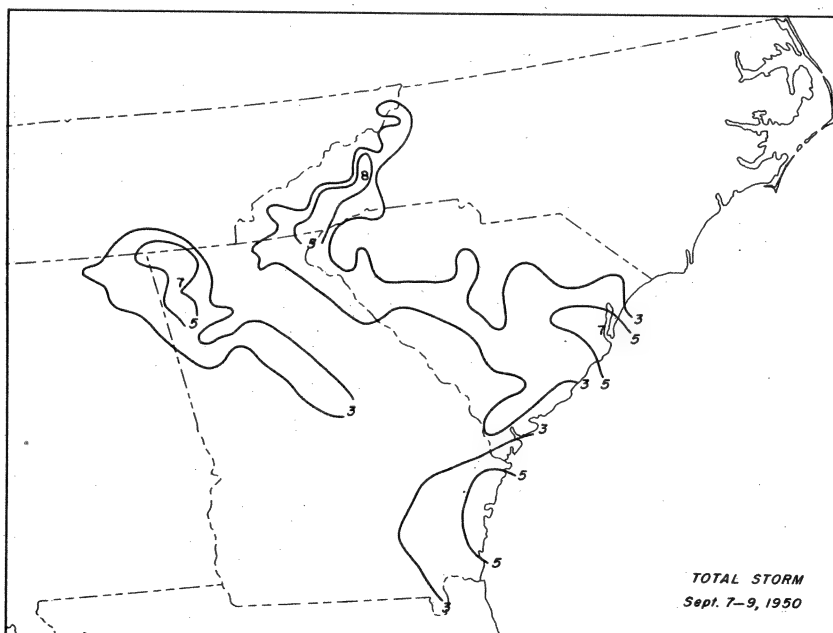
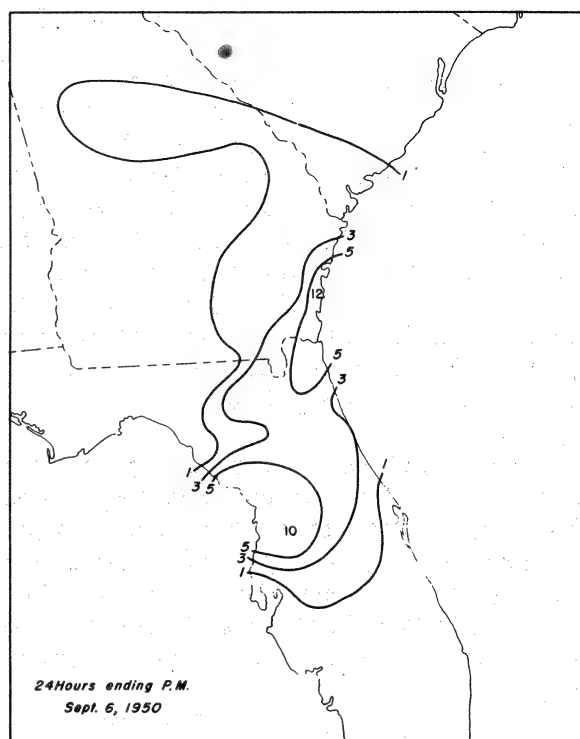
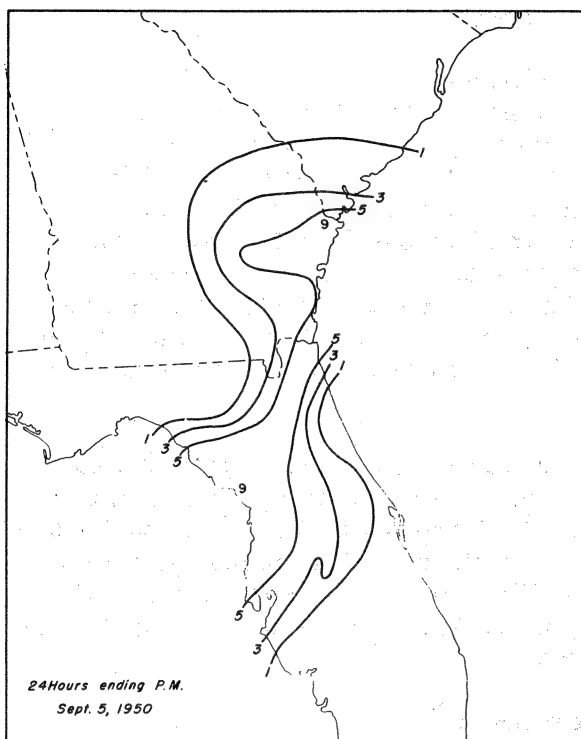
The hurricane that entered the Florida coast south of Cedar Keys on the morning of September 5 was first observed over the northwestern Caribbean, south of the Isle of Pines, on the 1st. The disturbance remained stationary for two days before moving across Cuba, near Havana. The hurricane then curved to the north-northwest through the eastern Gulf until the 4th, when it traversed a loop, curved northeastward and crossed the Florida coast on the morning of the 5th. After crossing the coast on the 5th, the hurricane moved south toward Tampa, turned eastward, and then made a sharp curve back to the north on the 6th. The weakened disturbance continued northward and dissipated over southern Georgia on the 7th.

Rainfall was heavy from September 4 to September 6 along a line from Cedar Keys, Fla., to Savannah, Ga. Two other areas of moderate-to-heavy rains occurred over the western Carolinas on the 8th and 9th as the remaining circulation of the moist, tropical air underwent orographic lifting and along the Georgia and South Carolina coasts on the 7th in the forward quadrants of the decaying hurricane.

Maximum Total-Storm Amount

Cedar Keys, Fla.: 24.5 in.





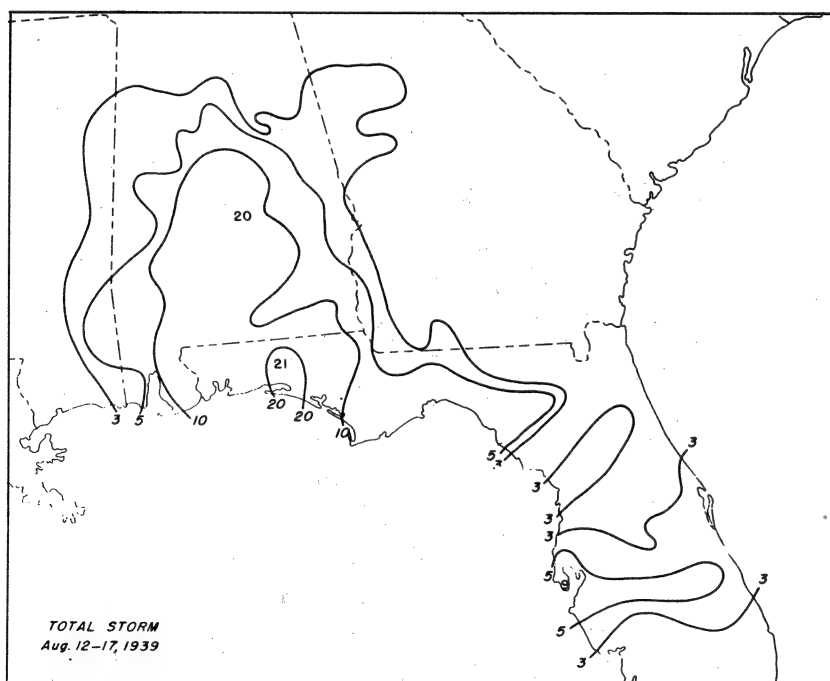
STORM OF AUGUST 11-20, 1939

Meteorological Summary

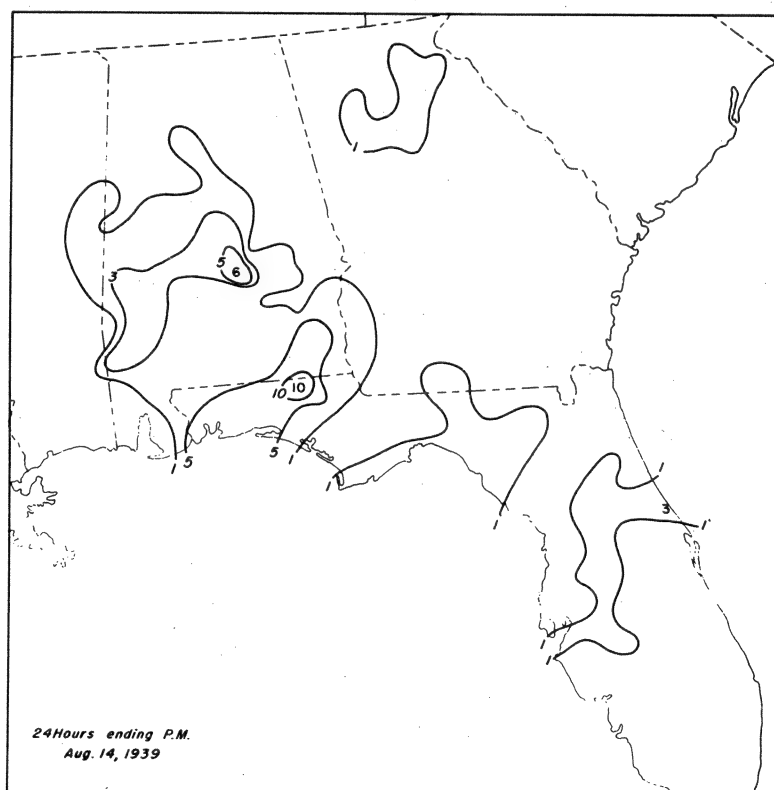
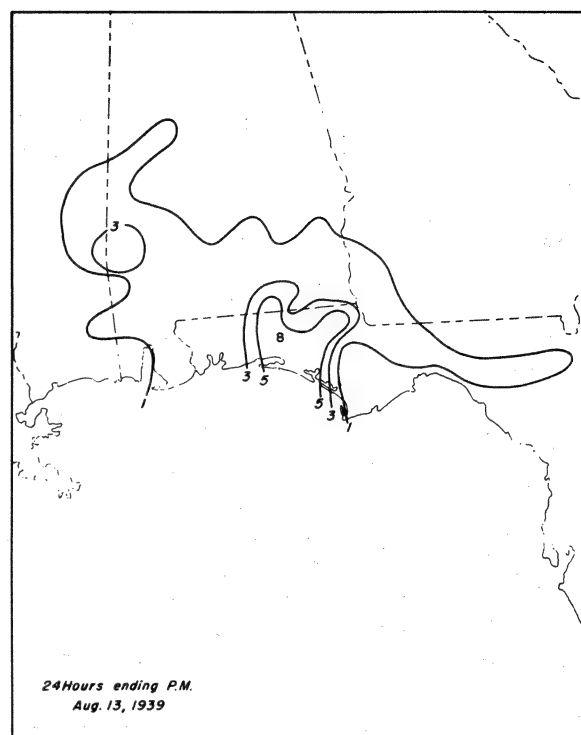
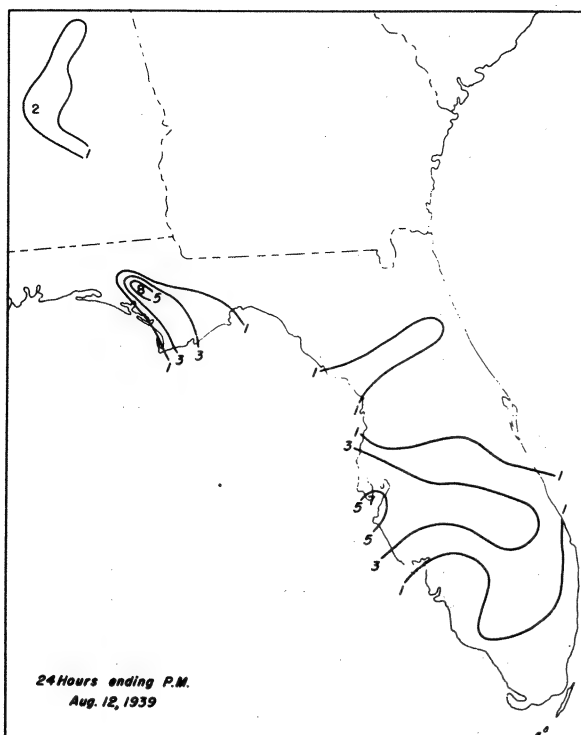
The moderately intense hurricane that entered the east coast of Florida near Fort Pierce late in the afternoon on August 11 moved northwestward and later re-entered the western Florida coast passing over Port St. Joe on the 12th. The hurricane was first observed near 22° N and 66° W on the 8th. It moved west-northwestward through the Atlantic into the Florida Straits, on the afternoon of the 11th. The disturbance crossed the Florida Peninsula into the extreme northeastern Gulf and then re-entered the coast passing over Port St. Joe at 6 p.m. on the 12th. Having stagnated over southeastern Alabama until the 17th, the disturbance accelerated northeastward and passed east of the Appalachian Mountains. It reached southeastern Pennsylvania on the 20th and dissipated.

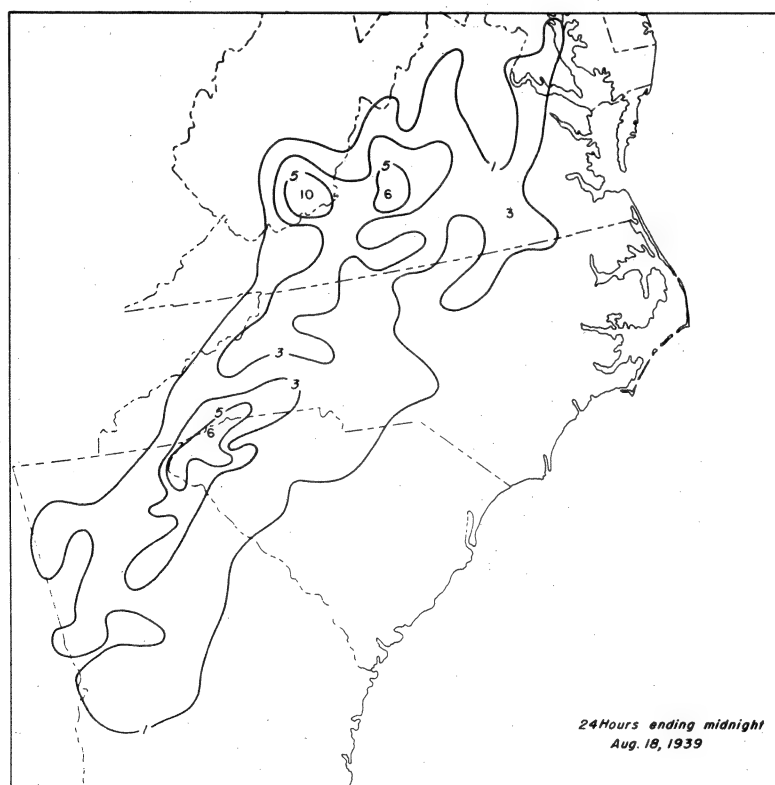
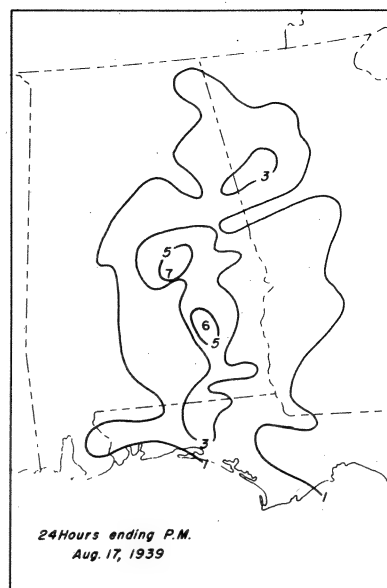
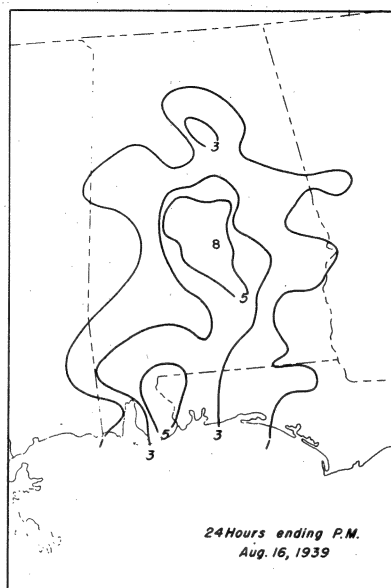
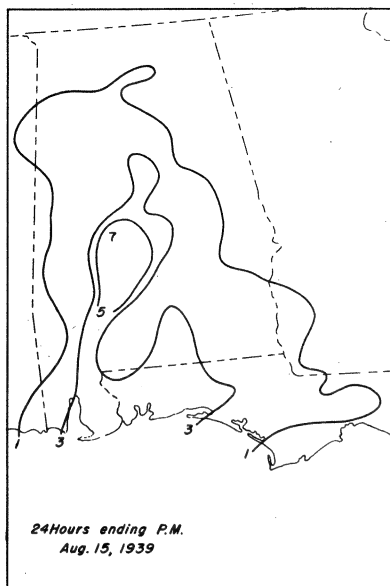
Rainfall was heavy along the path of the hurricane from August 12 to August 20. The maximum rainfall amounts of the storm occurred in Alabama; however, heavy rains accompanied the remnants of the storm as it moved northeastward during the period from the 18th to the 20th*. The isohyetal patterns have been separated at the 17th. The 18th isohyetal map portrays the orographic precipitation that occurred as the disturbance took on extratropical characteristics as it moved northeastward.

Maximum Total-Storm Amount
De Funiak Springs, Fla.: 21.3 in.



*See page 266, North Atlantic Section





STORM OF OCTOBER 14-20, 1910

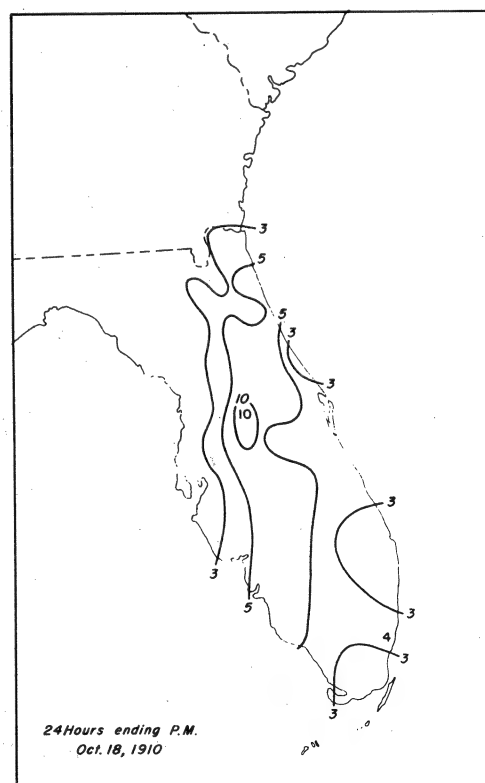
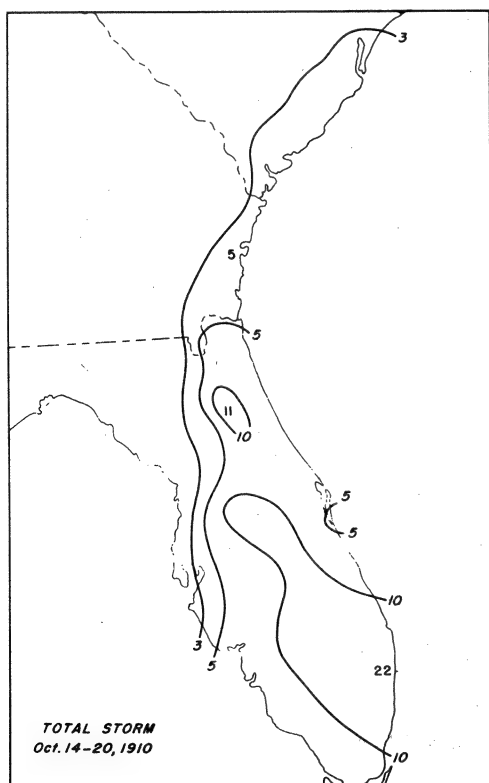
Meteorological Summary

The tropical disturbance that entered the southwestern part of the Florida Peninsula during the evening of October 17 was first observed over the southwestern Caribbean on the 9th. It deepened and moved slowly northward passing over western Cuba on October 15. Its northward movement was retarded due to the presence of a high-pressure system centered over the eastern Great Lakes region. As the High moved eastward, the disturbance began its northward movement on October 17. It entered the southwestern part of the Florida Peninsula and continued slowly northward, then northeastward, following the flow around the western edge of the high-pressure system. On the morning of October 20, the disturbance consolidated with an eastward-moving cold front off the Carolina coast and moved rapidly out to sea.

Rainfall was heavy throughout the Florida Peninsula from October 14 to October 18 ahead of and along the path of the disturbance with a pre-hurricane burst of 16.8 inches at Hypoluxo. Rainfall amounts further north were not as heavy as the disturbance moved along the coast, the heaviest rains being confined to the coastal regions.

Maximum Total-Storm Amount

Hypoluxo, Fla.: 21.6 in.



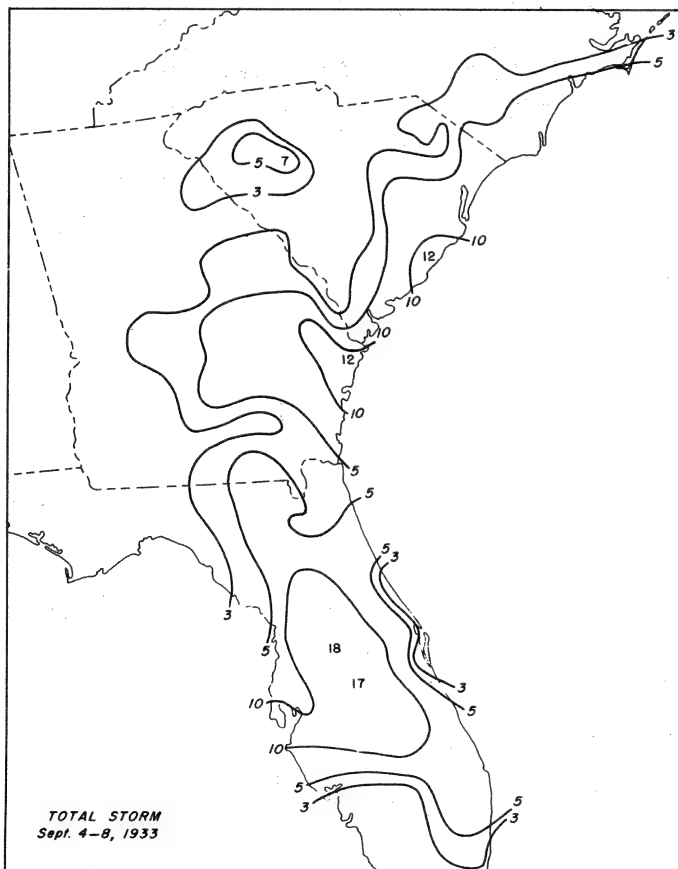
STORM OF SEPTEMBER 4-8, 1933

Meteorological Summary

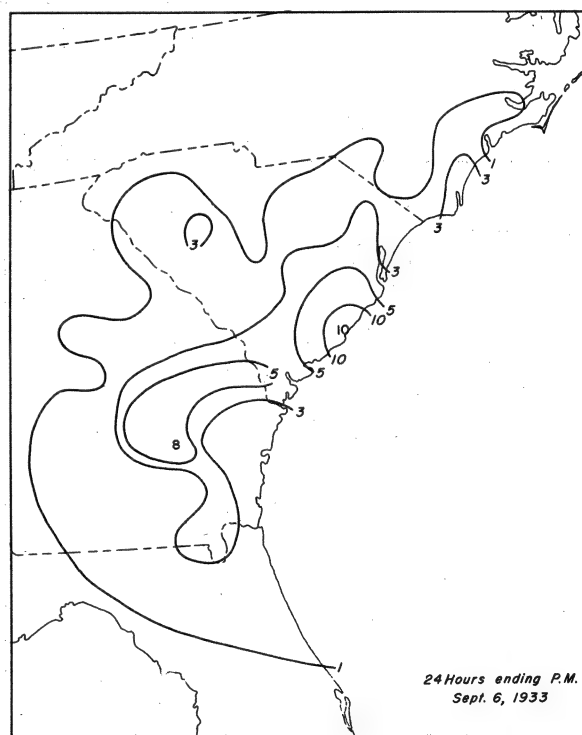
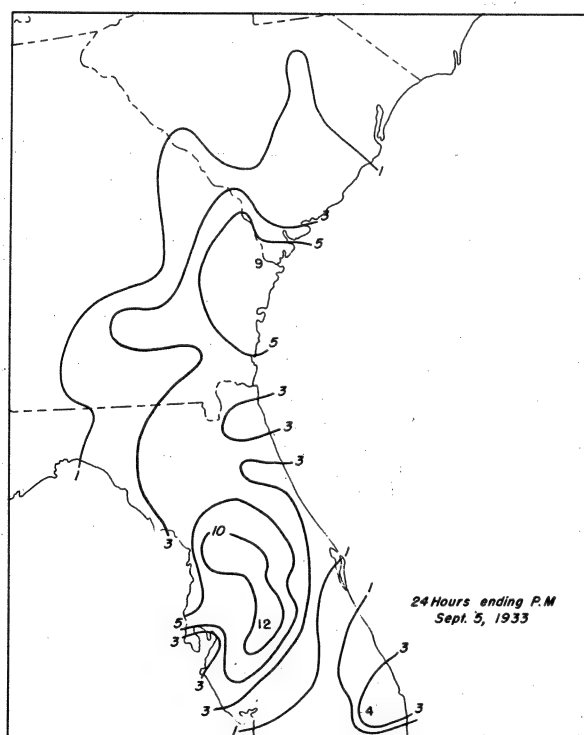
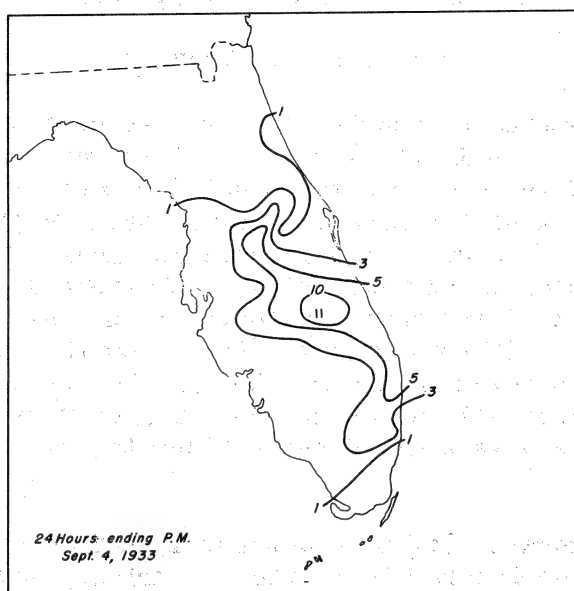
The severe hurricane that entered the eastern Florida coast near Jupiter Inlet at about midnight of September 3 was first observed northeast of Puerto Rico on September 1. After pursuing a west-northwesterly course following a sister disturbance* that was then passing over Cuba, the disturbance turned in a more northerly direction and passed over the Bahamas on September 3. During the night of September 3 the hurricane entered southeastern Florida and recurved slowly to the north and then northeast and finally dissipated over western North Carolina on September 7.

Rainfall was heavy ahead and to the right of the disturbance as it moved through Florida and southern Georgia. The rains remained moderate to occasionally heavy as the disturbance moved north of Georgia but began to diminish and spread to all quadrants of the disturbance by the time it dissipated over western North Carolina.

Maximum Total-Storm Amount
Clermont, Fla.: 17.8 in.



*See Storm of September 4-5, 1933, p. 105 Gulf Section



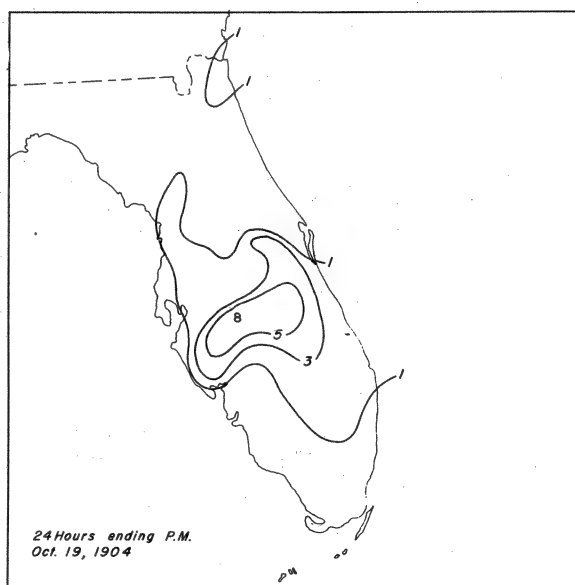
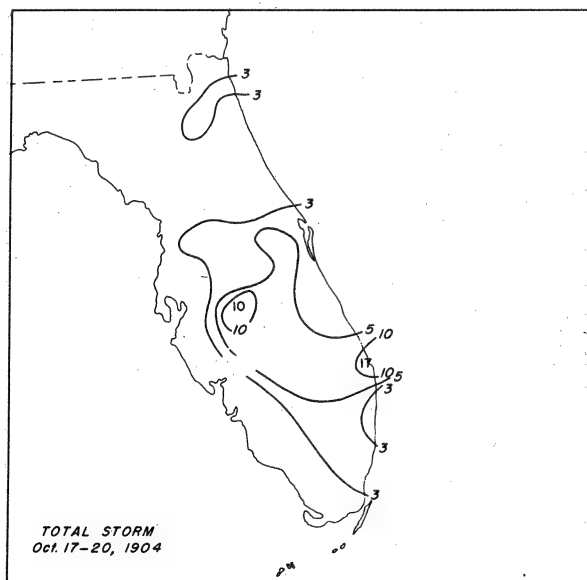
STORM OF OCTOBER 17-20, 1904

Meteorological Summary

The tropical disturbance that moved into the southwestern Florida Peninsula on October 19 was evident over the central Caribbean on October 12. The disturbance moved west-northwestward until October 15 when it curved to the northeast along a weak trough over the northern Caribbean. It crossed Cuba and traveled to the east of the Florida Peninsula on October 17. The disturbance then came under the influence of a strong high-pressure system centered over New England and moved westward around the southern edge of the High until October 19. It then recurved to the north and entered southwestern Florida. Continuing northward through the Peninsula, the tropical disturbance consolidated with an eastward-moving cold front and passed to the east of Florida as a wave disturbance along the front by morning of October 21.

Rainfall was generally light on October 17 and October 18 but increased to moderate to heavy on October 19 as the disturbance moved into southwestern Florida. The rain decreased in intensity and finally ceased as the cooler air behind the cold front moved over the area on October 21.

Maximum Total-Storm Amount
Jupiter, Fla.: 16.8



STORM OF SEPTEMBER 18-20, 1955 (Ione)

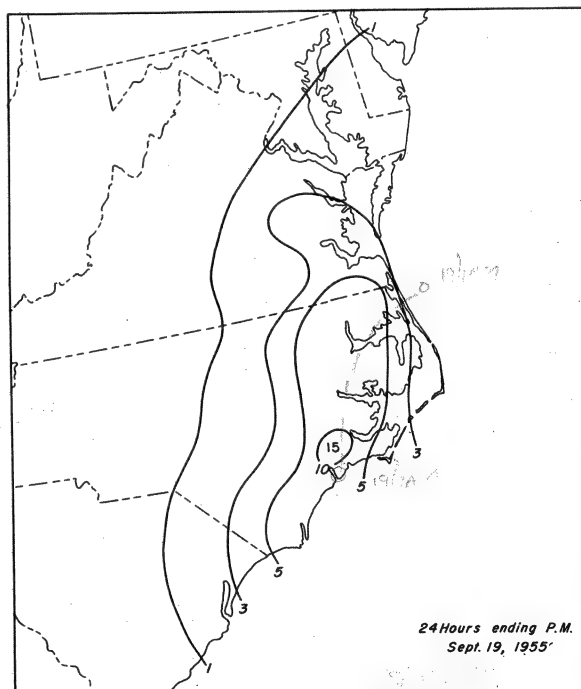
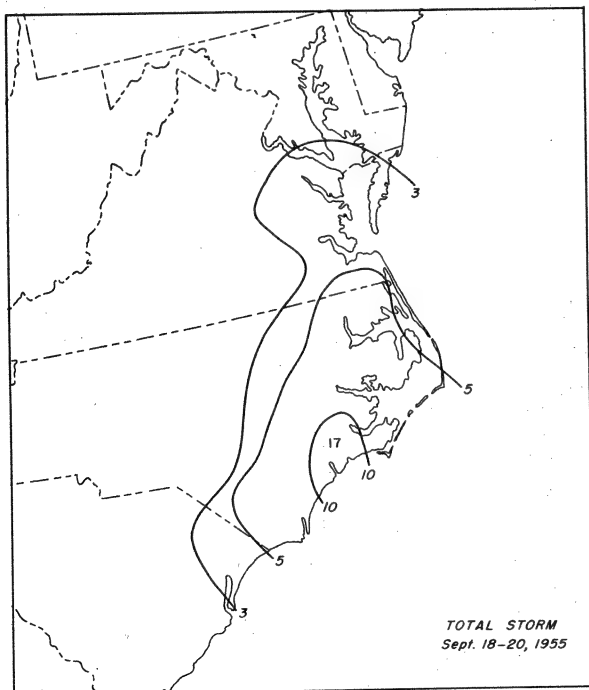
Meteorological Summary

The hurricane that entered the North Carolina coast near Cherry Point at about 5 a.m. on September 19 (the third to cross the North Carolina coast in 6 weeks) was first observed as a storm of hurricane intensity during the night of September 14-15 at about 19.5° N and 62.6° W. The hurricane moved northwestward toward the North Carolina coast and, having weakened somewhat on the 18th, reached the North Carolina coast on the 19th. After crossing the coast the hurricane recurved to the northeast and passed out to sea south of Norfolk, Va., at about midnight on the 19th.

Rainfall was heavy along the path of the hurricane with the heaviest amounts occurring as the hurricane moved through the coastal regions of North Carolina and southeastern Virginia on September 19.

Maximum Total-Storm Amount

Maysville, N. C.: 16.6 in.



STORM OF OCTOBER 1-7, 1951 (How)

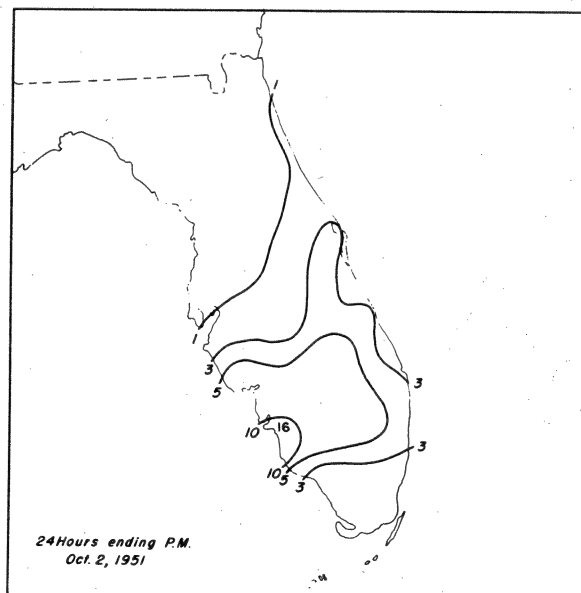
Meteorological Summary

The tropical disturbance that crossed the Florida Peninsula from Punta Gorda to Vero Beach on October 2 was first noted as an easterly wave on September 29. The wave moved northwestward into the Gulf through the Yucatan Channel, and by the 1st it was located as a closed circulation at 26.0° N and 86.5° W. The center turned sharply eastward and crossed the Florida Peninsula on the 2nd and then continued northeastward as it increased to hurricane intensity. The hurricane passed a short distance east of Hatteras, N. C., on the 4th and was located several hundred miles south of Nova Scotia and Newfoundland on the 6th and 7th.

Rainfall was moderate to heavy to the right of the disturbance as it crossed the Florida Peninsula on October 2.

Maximum Total-Storm Amount

Bonita Springs, Fla.: 15.7 in.



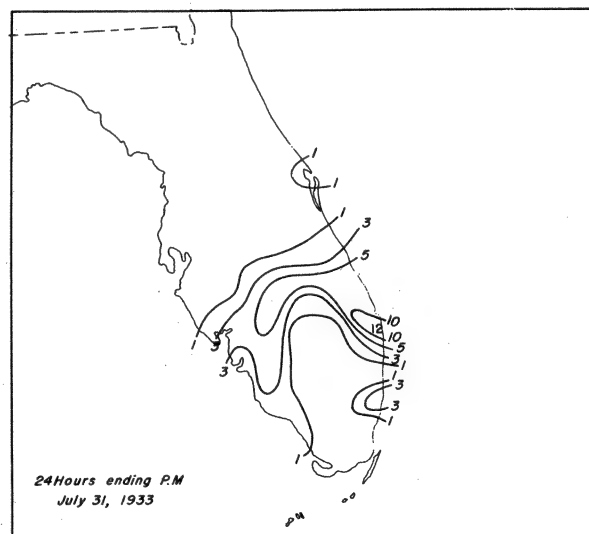
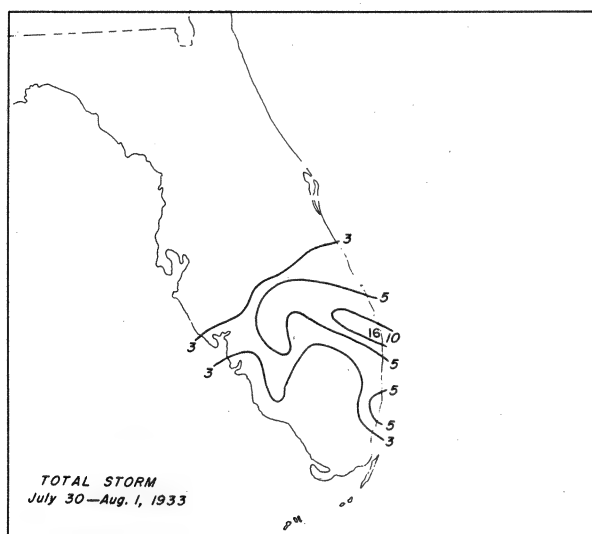
STORM OF JULY 30-AUGUST 1, 1933

Meteorological Summary

The hurricane that entered the Florida coast south of Fort Pierce during the night of July 30 was first observed over the Lesser Antilles on July 25. It moved west-northwestward following the flow around the Bermuda High. Having crossed Haiti into the Florida Straits on July 27, the hurricane curved westward, reaching the southern coast of Florida during the night of July 30. It continued westward through the Gulf of Mexico and finally entered the Mexican coast near Tampico on August 4 and dissipated.

Rainfall was heavy over the southeastern Florida Peninsula occurring ahead and to the right of the hurricane center as it moved across that region on July 30 and July 31. On August 5 some light-to-moderate rain from this disturbance reached as far north as southeastern Texas as the disturbance dissipated in Mexico. Twenty-four rainfall amounts were generally around 3 inches over extreme southeastern Texas on August 5.

Maximum Total-Storm Amount
West Palm Beach, Fla.: 15.7 in.



*See page 105, Gulf of Mexico Section

STORM OF NOVEMBER 29-DECEMBER 3, 1925

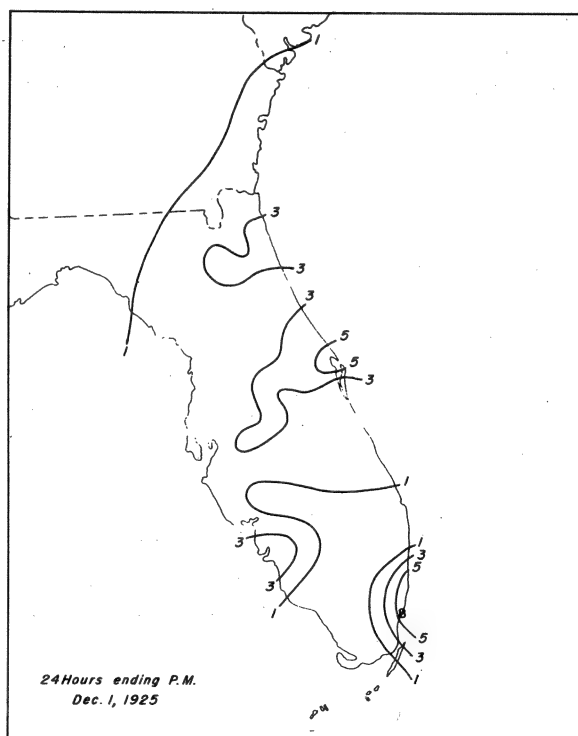
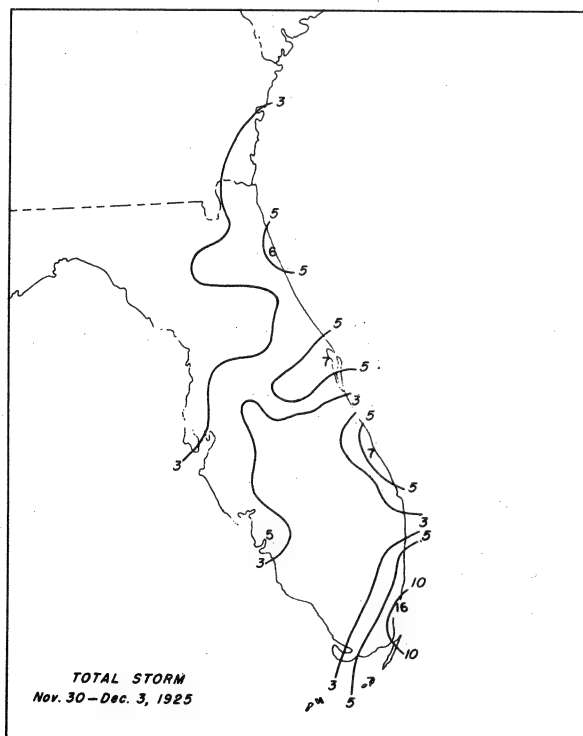
Meteorological Summary

The hurricane that crossed the Florida Peninsula south of Tampa during the night of November 30-December 1 formed over the northwestern Caribbean Sea on November 29. After moving northeastward through the Yucatan Channel, the hurricane entered Florida south of Tampa, near Titusville, during the night of November 30-December 1. It then curved northward and entered the North Carolina coast between Wilmington and Hatteras at about 6 p.m. on December 2. The hurricane moved out to sea a short distance south of Cape Henry, Va., during the same night. At this time northeastward progress of the hurricane was blocked by a high-pressure center over the Maritime Provinces, and the hurricane curved abruptly to the east and continued out into the Atlantic.

Rainfall was moderate to heavy over southern Florida on November 30 and December 1 during the period of hurricane passage. Rainfall over North Carolina and Virginia during the 2nd and 3rd was confined to light-to-moderate showers along the path of the hurricane as it passed through the coastal area.

Maximum Total-Storm Amount

Miami, Fla.: 15.5 in.



STORM OF OCTOBER 5-6, 1934

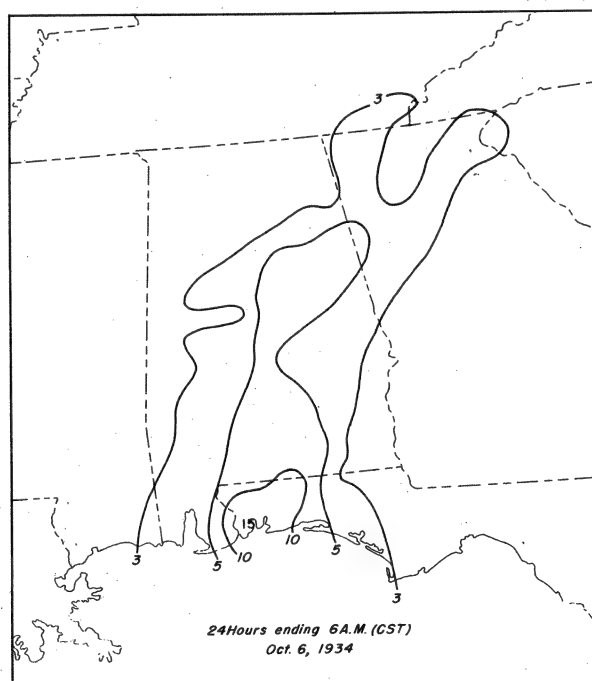
Meteorological Summary

The tropical disturbance that consolidated with a quasi-stationary front over the central Gulf of Mexico and entered the Florida-Alabama coast on October 5 was first observed over the northwestern Caribbean on October 1. Passing through the Yucatan Channell into the Gulf of Mexico, the disturbance intensified as it joined with a stationary front on October 4. The new low center continued northward and entered the Gulf Coast on October 4. It remained stationary along the Gulf Coast until October 6, when it dissipated under the influence of an extratropical high-pressure system that entered the region that day.

Rainfall was heavy in the forward quadrants of the disturbance as it moved into the Gulf Coast and continued moderate to heavy until midnight of October 5 when the cooler drier air from the extratropical High spread over the region. A band of light showers extended from the Gulf Coast to New England to the rear of the associated frontal zone.

Maximum Total-Storm Amount

Pensacola, Fla.: 15.3 in.



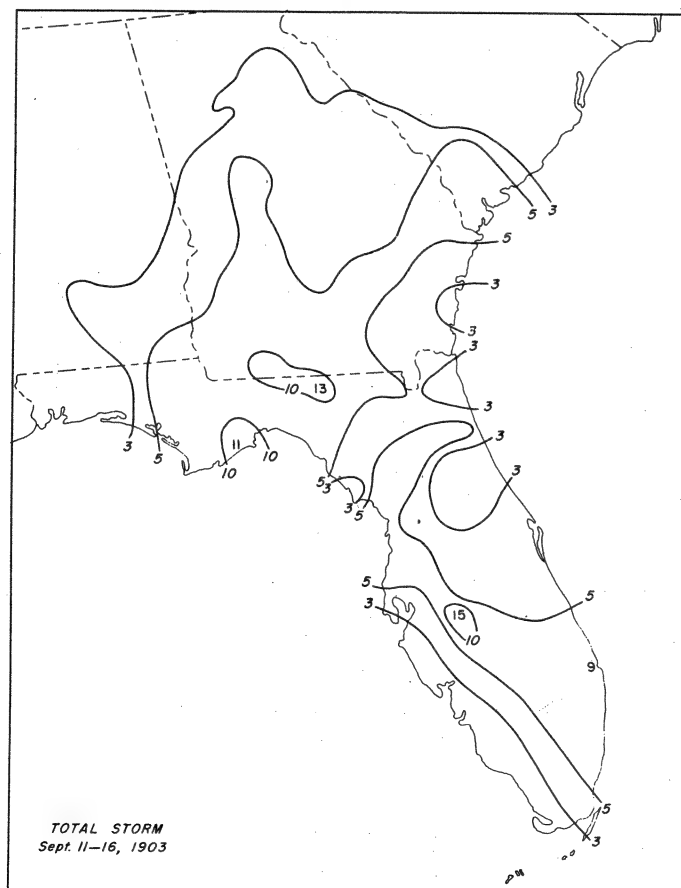
STORM OF SEPTEMBER 11-16, 1903

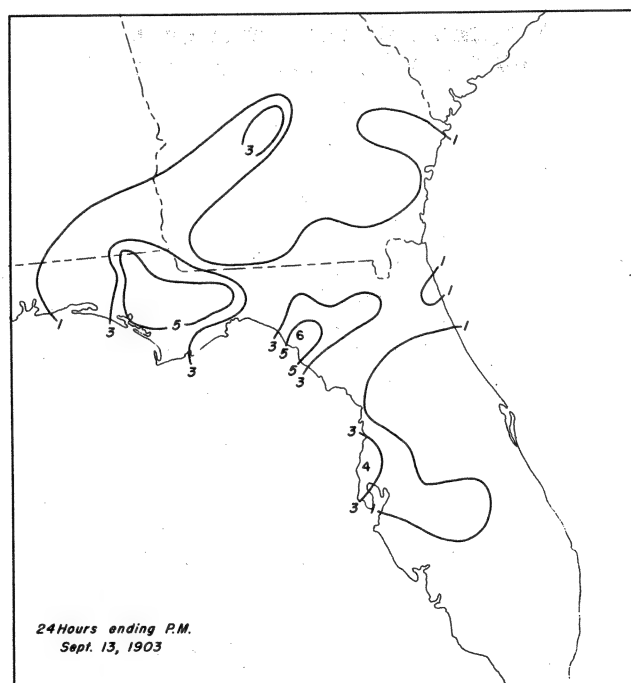
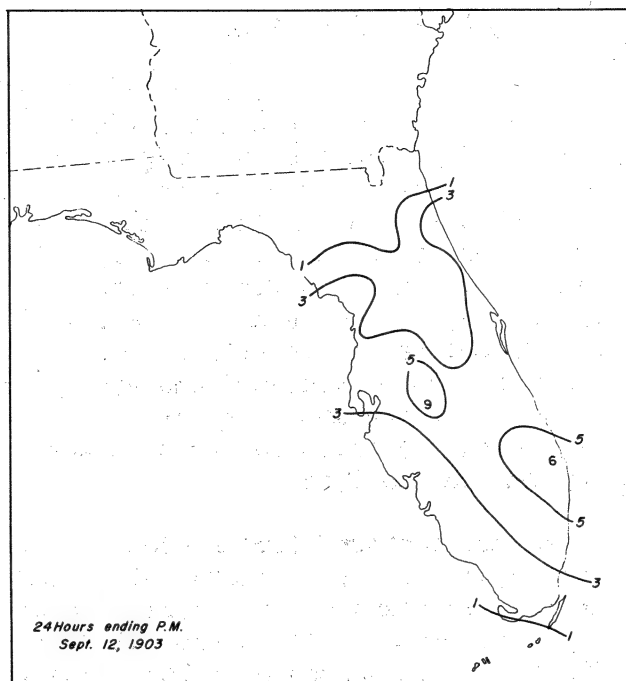
Meteorological Summary

The tropical disturbance which produced the rain of September 11-16 was first noted in the Florida Straits on September 9. It moved northwestward over southern Florida on September 11, passing into the Gulf of Mexico on the following morning. The disturbance then curved toward the north and crossed the Gulf Coast near Pensacola, Fla., during the evening of September 13. Upon entering the Coast, the disturbance stagnated and then moved very slowly northward causing moderate rain until September 16. At this time the decayed tropical disturbance consolidated with a slow-moving cold front over northern Georgia and traveled northeastward along the front as a weak wave.

Rainfall was light to moderate as the disturbance moved across Florida on September 11 but increased to moderate to heavy upon entering the Gulf Coast on the 13th. The rain continued heavy as the system stagnated on September 14. Light-to-moderate showers also occurred along the eastern Appalachians as the disturbance moved through the area on the 16th.

Maximum Total-Storm Amount
Fort Meade, Fla.: 14.5 in.





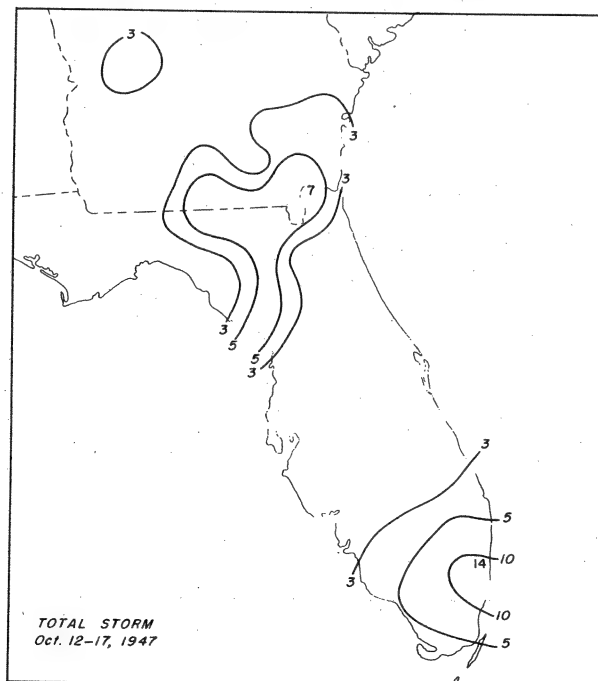
STORM OF OCTOBER 11-17, 1947

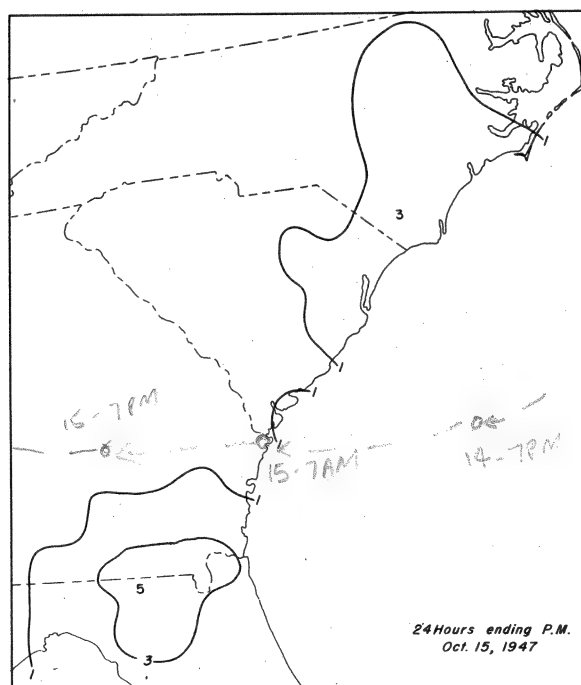
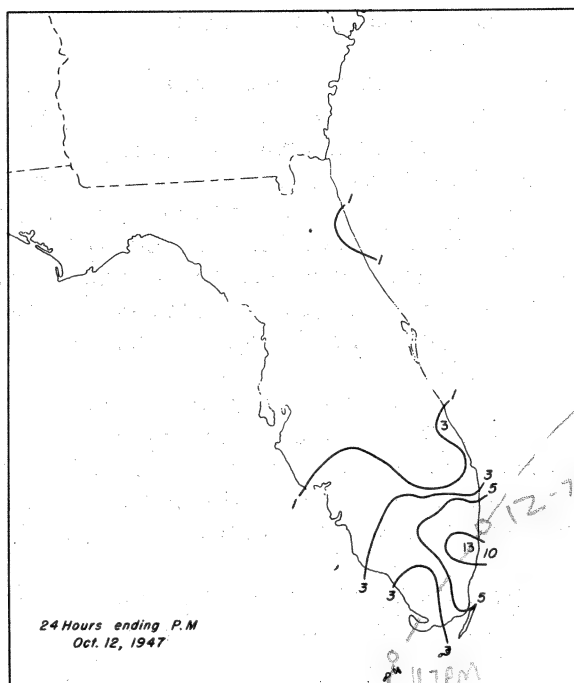
Meteorological Summary

The severe hurricane that passed over extreme southern Florida on the night of October 11-12, and then three days later entered the Georgia coast near Savannah, was noted off Cape Gracias, Nicaragua, on the 9th. The hurricane moved north-northeastward, crossed Cuba west of Havana during the night of October 10-11, and entered southern Florida near Cape Sable during the night of October 11-12. Continuing northeastward, the hurricane passed into the Atlantic between Miami and Palm Beach on the morning of the 12th and, curving more to the northeast, reached an area off the Carolina coast where its position and movement became uncertain. On the 14th, with renewed intensity, the hurricane moved westward and entered the Georgia coast near Savannah at about 7 a.m. on the 15th. After moving inland the hurricane weakened rapidly and began to curve to the northwest, finally dissipating over western Kentucky on the 17th.

Rainfall was heavy in southeastern Florida along the path of the hurricane during the night of October 11-12. Moderate-to-locally-heavy showers occurred to the left of the hurricane as it entered the Georgia coast on the 15th. In addition, there was some light rain along the Carolina Capes during the 13th and 14th as the disturbance weakened and then intensified again off the coast during that period. There was also a small area of moderate showers in the moist, tropical air over the western Carolinas on the 17th.

Maximum Total-Storm Amount
Pompano Beach, Fla.: 14.3 in.





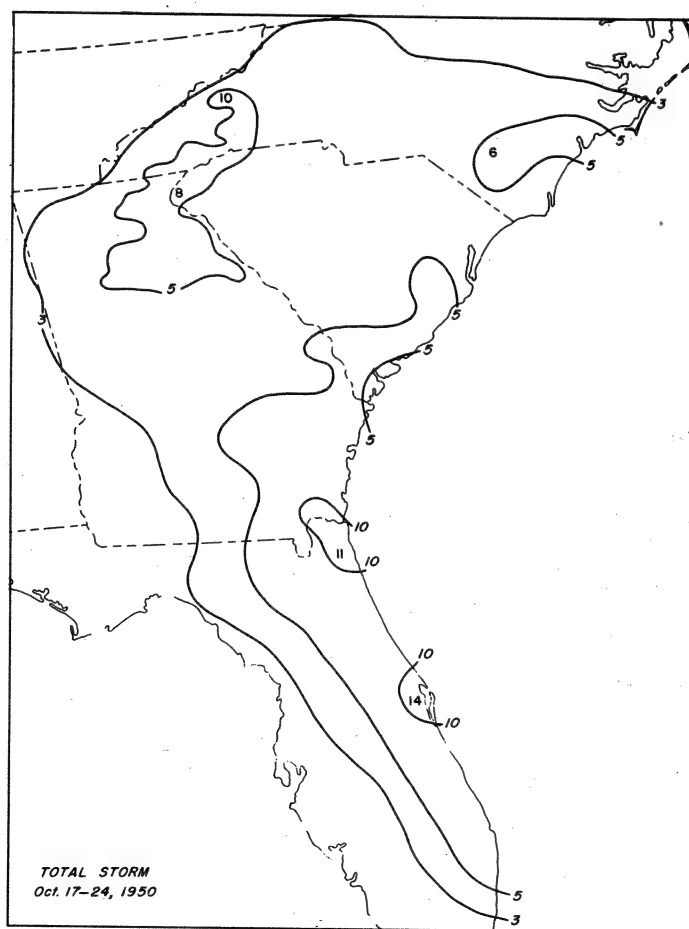
STORM OF OCTOBER 15-19, 1950 (King)

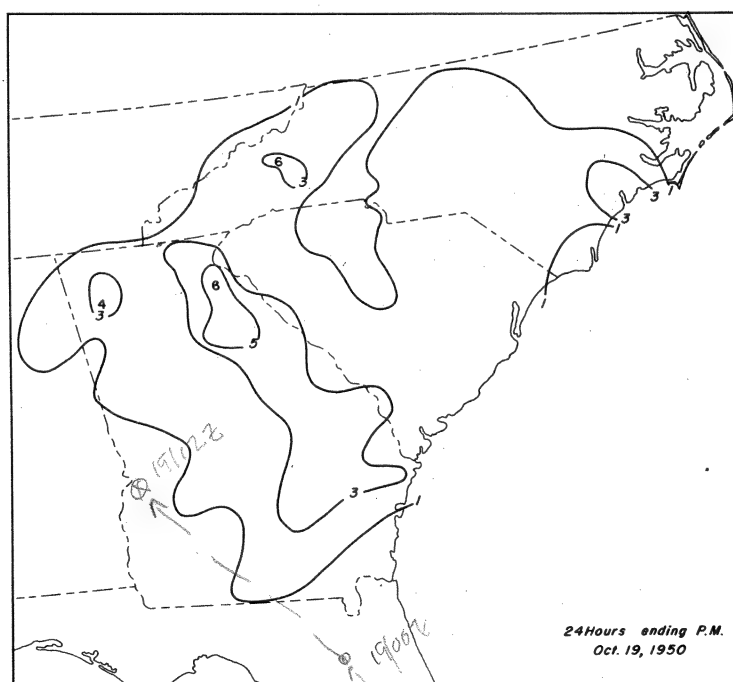
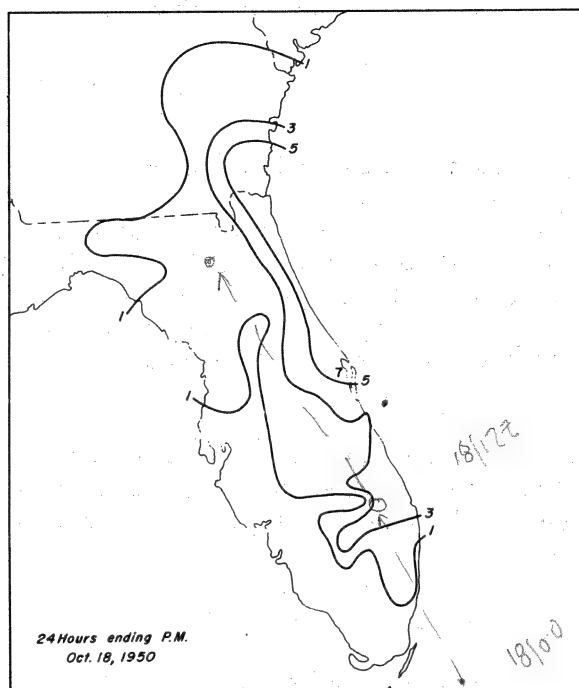
Meteorological Summary

The small violent hurricane that passed directly over Miami, Fla., at about midnight on October 17 formed over the northwestern Caribbean on the 15th. The hurricane moved on a northeasterly course, crossed the western end of Jamaica, then turned northward and crossed Cuba during the night of the 16th. The hurricane curved more to the northwest as it moved through the Florida Straits on the 17th and crossed the southeastern coast of Florida. After entering the coast, the hurricane continued its northwesterly course as a hurricane of moderate intensity and passed through eastern Florida into Georgia. Here it weakened rapidly and finally lost its identity over central Alabama on the morning of the 19th.

Rainfall was moderate to heavy in the forward right quadrant of the hurricane as it passed through Florida into Georgia on October 18. The rainfall pattern changed on the 19th as a result of the flow of the weakening hurricane, creating the small maxima along the North Carolina coast and along the eastern Appalachians from Georgia to North Carolina.

Maximum Total-Storm Amount
Titusville, Fla.: 13.9 in.





STORM OF AUGUST 28-SEPTEMBER 2, 1937

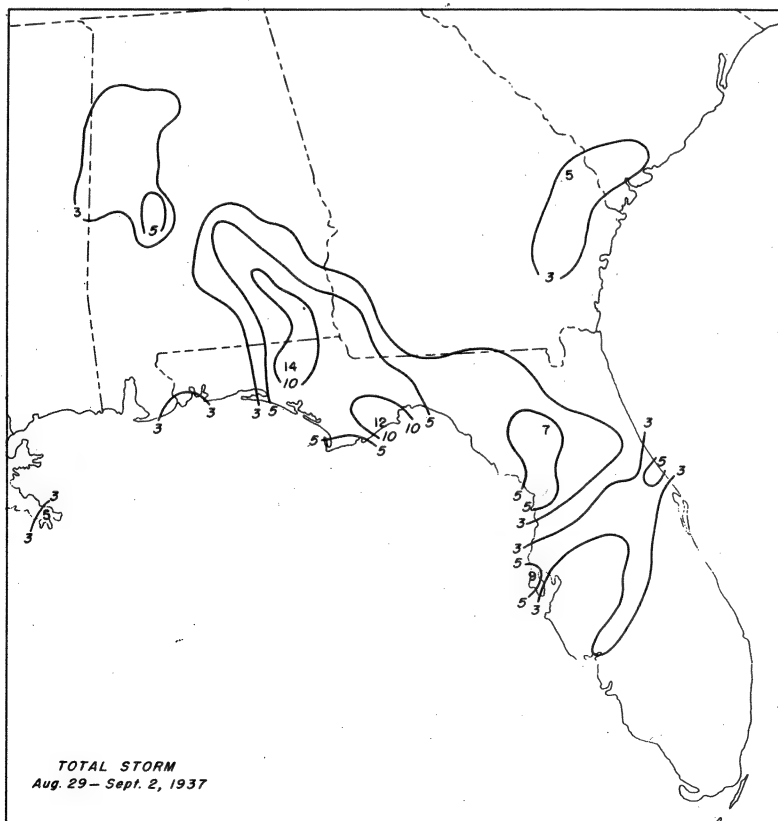
Meteorological Summary

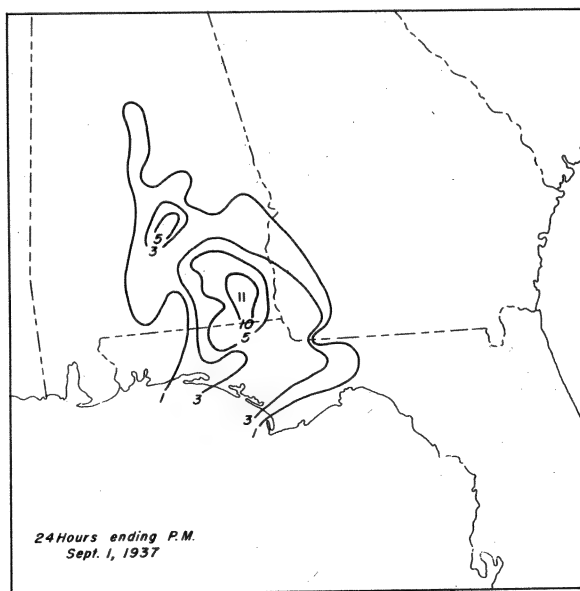
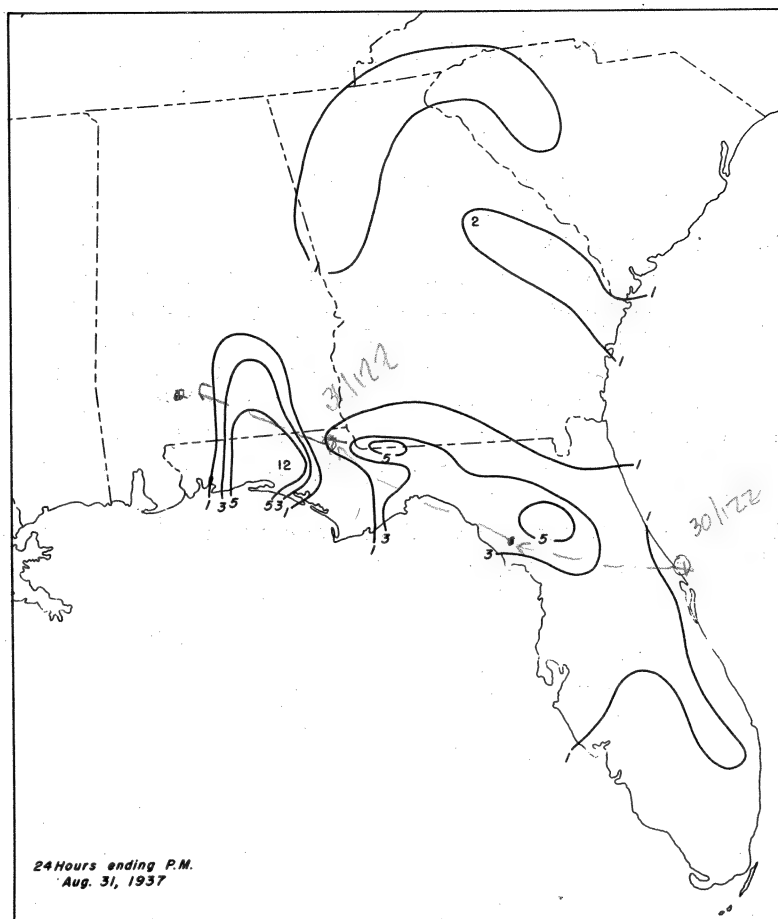
The weak tropical disturbance that entered the coast of northeastern Florida on August 30 was first observed east of the Bahama Islands on August 27. It moved northwestward and entered the Florida coast on August 30. Shifting to a west-northwestward course, following the flow of the Bermuda High, the disturbance reached central Mississippi and dissipated on September 2.

Rainfall was moderate on August 30 but increased in intensity near the immediate vicinity of the disturbance as it moved westward. The greatest amounts occurred on August 31 and September 1 as the disturbance moved over the southern Gulf Coast.

Maximum Total-Storm Amount

Vernon, Fla.: 13.8 in.





STORM OF OCTOBER 20-27, 1921

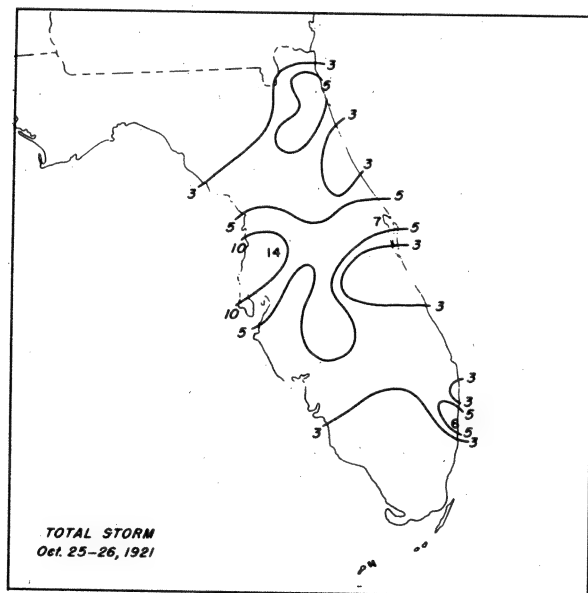
Meteorological Summary

The tropical disturbance that passed over central Florida on October 25 was first observed in the south-central Caribbean on the 20th. It deepened and began moving northwestward around the Bermuda High. After passing through the Yucatan Channel on October 24, the disturbance curved to the northeast, the Bermuda High having shifted further east, and entered Florida in the vicinity of Tampa on October 25. The disturbance moved slowly eastward across the Peninsula until morning of October 26, when it accelerated as it moved into an extratropical trough off the east coast of Florida.

Rainfall was heavy in the forward quadrants of the disturbance as it passed through Florida on October 25.

Maximum Total-Storm Amount

St. Leo, Fla.: 13.8 in.



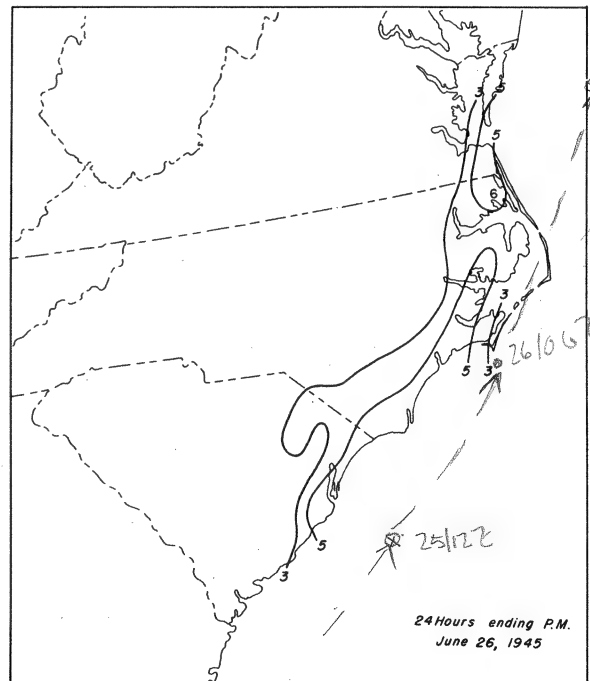
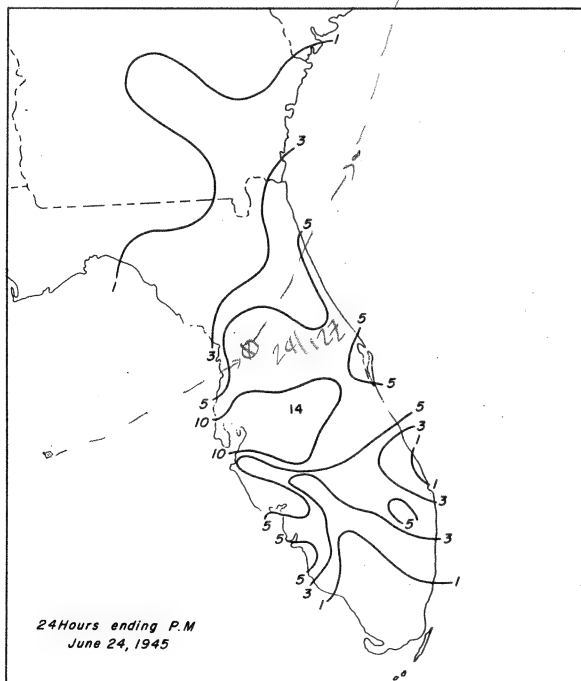
STORM OF JUNE 20-27, 1945

Meteorological Summary

The hurricane that crossed the Florida coast between Brooksville and Dunnellon at about 4:00 a.m. on June 24 was first observed over the western Caribbean between Swan Island and Honduras on the 19th. The disturbance moved through the Yucatan Channel to 27.5° N and 86.5° W, where it turned sharply northeastward and struck the Florida coast on the 24th. The hurricane remained intact as it crossed the Peninsula and moved into the Atlantic between Daytona Beach and St. Augustine about noon of the 24th. The hurricane then skirted the East Coast until it entered near Hatteras, N. C. about midnight of the 25th. Continuing northeastward, the hurricane weakened, losing its identity south of Nova Scotia on the 27th.

Torrential rains fell over Florida ahead and to the right of the disturbance as it crossed the Peninsula, then diminished shortly after the hurricane passed out to sea. The heavy rains spread northward along the southeastern coast, with the greatest amount occurring to the left of the center as it passed just off the coast, and also to the left of the center when it crossed eastern North Carolina during the night of June 25-26.

Maximum Total-Storm Amount
Lake Alfred, Fla.: 13.6 in.



STORM OF SEPTEMBER 23-26, 1953 (Florence)

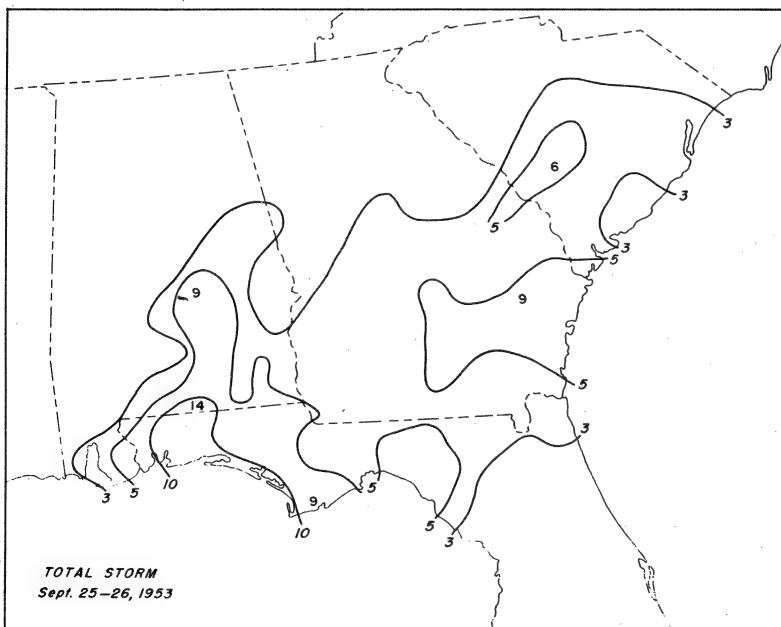
Meteorological Summary

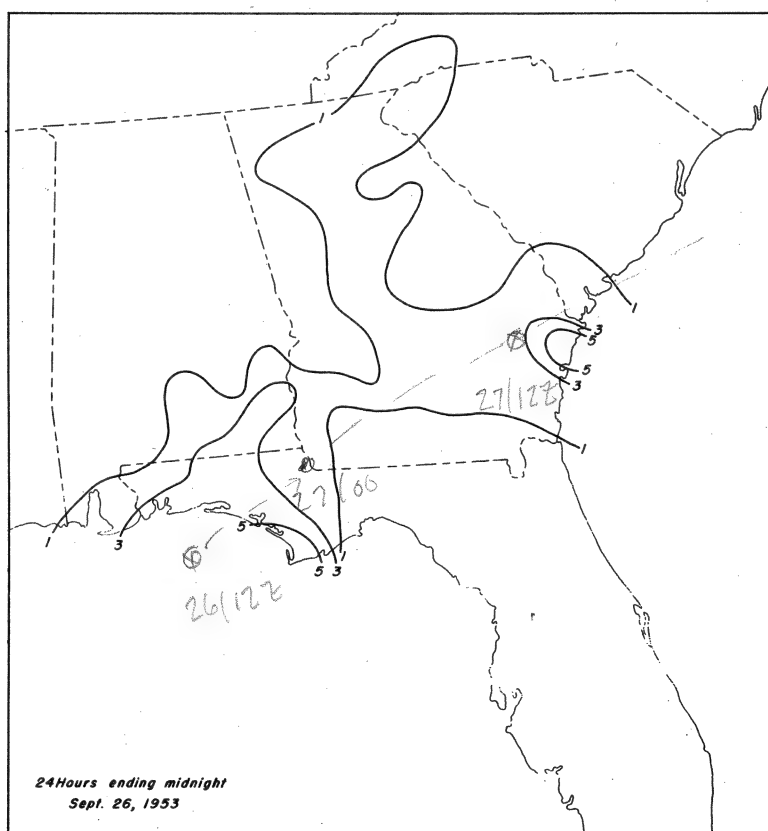
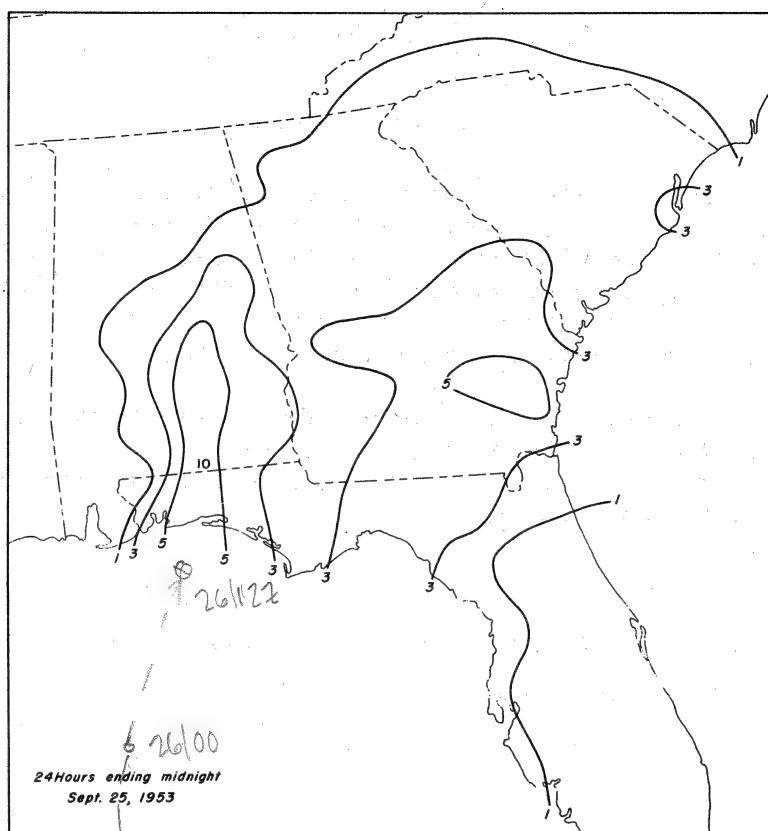
The hurricane that entered the western Florida coast between Valparaiso and Panama City near midday of September 26 was observed in the Caribbean about 100 miles southeast of Jamaica on the 23rd. The disturbance moved west-northwestward and reached hurricane force as it passed into the Gulf of Mexico through the Yucatan Channel on the 24th. The hurricane curved to the north, decreased somewhat in intensity, and crossed the west coast of Florida on the 26th. The hurricane then curved sharply to the northeast, passed through southeastern Alabama and southern Georgia, and lost its identity over southern South Carolina on the 27th.

Rainfall was heavy along the path of the hurricane as it entered the Florida coast on September 26. There were moderate showers over southern Georgia well in advance of the hurricane on the 25th and again when the weakened disturbance reached that area on the 26th.

Maximum Total-Storm Amount

Lockhart, Ala.: 13.6 in.





STORM OF JULY 9-12, 1948

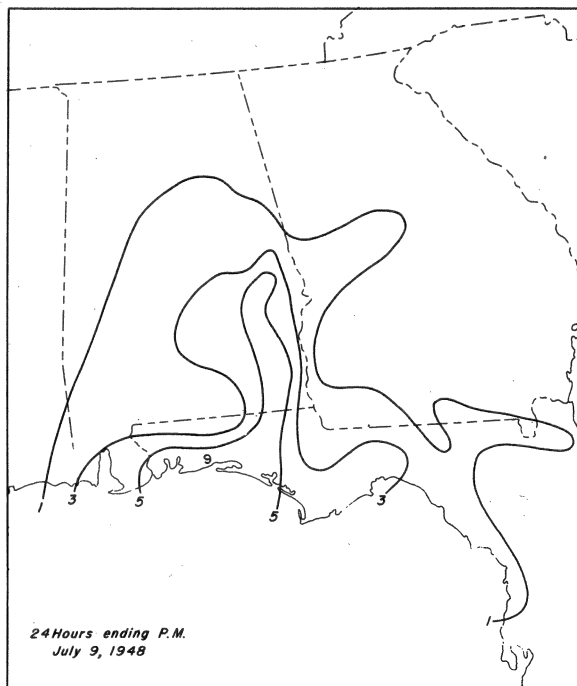
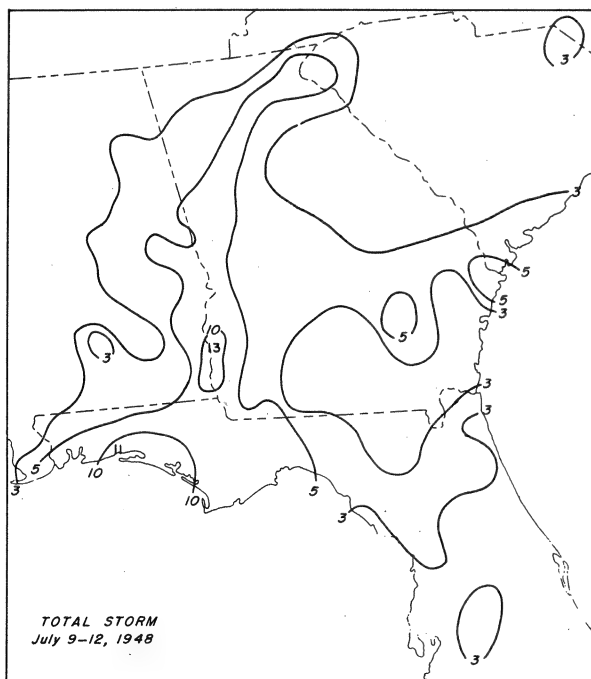
Meteorological Summary

The small tropical disturbance that passed inland over Pensacola, Fla., during the night of July 8-9 formed in an area of unsettled weather in the northern Gulf during the afternoon of the 7th. The disturbance moved north-eastward and crossed the western Florida coast during the night of July 8-9. Weakening as it curved to the northwest on the 10th, the disturbance finally lost its identity over western Kentucky on the 11th.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland during the night of July 8-9. Rainfall of lesser intensity spread northward on the 10th, but amounts diminished as the disturbance moved northward and lost its identity.

Maximum Total-Storm Amount

Fort Gaines, Ga.: 13.4 in.



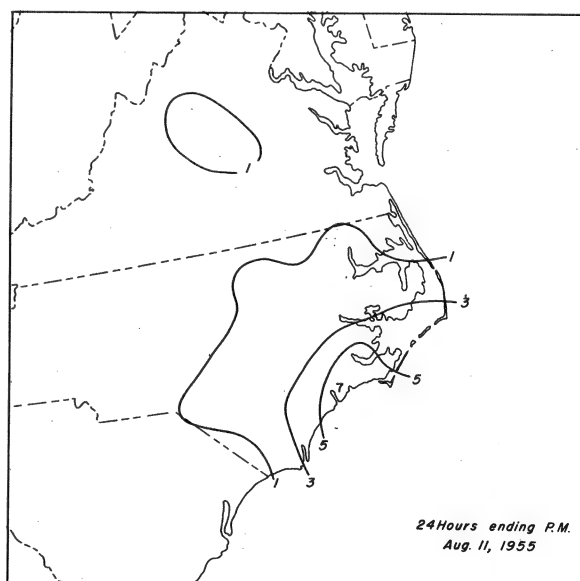
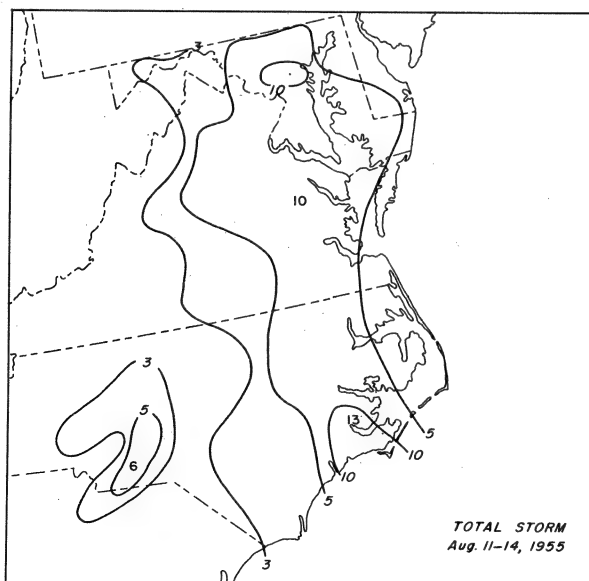
STORM OF AUGUST 11-15, 1955 (Connie)

Meteorological Summary

The severe hurricane that passed inland west of Cape Hatteras* about 8:30 a.m., August 12, was first observed on August 3 near 16.6° N and 48.0° W. It reached hurricane intensity on August 5 and passed north of the Virgin Islands and Puerto Rico on the 6th and 7th. It gradually decelerated and continued in a general westward direction until August 11, when it curved north-northwestward, then northward, and accelerated just prior to entering the North Carolina coast. It continued its northward movement across Chesapeake Bay, reaching central Pennsylvania on August 13 where it recurved to the northwest and passed over Lake Erie and Lake Huron on the 14th.

Moderate-to-heavy rainfall occurred from eastern North Carolina to western New York and southern New England as this hurricane moved through the area. A period of general rains extended over this same area on August 11 well in advance of the tropical disturbance; an area of lesser total rainfall amounts occurred in a small area north of Maryland along the path of the disturbance as it weakened on August 12. The moderate-to-heavy showers resumed just north of this small area during the afternoon and night of the 12th as the disturbance took on extratropical characteristics; as the weakened disturbance moved northwestward, the rains diminished and then ended over the entire region by August 14 as the disturbance passed over the eastern Great Lakes.

Maximum Total-Storm Amount
New Bern, N. C.: 13.4 in.



*See page 274, North Atlantic Section

STORM OF MAY 25-JUNE 6, 1953 (Alice)

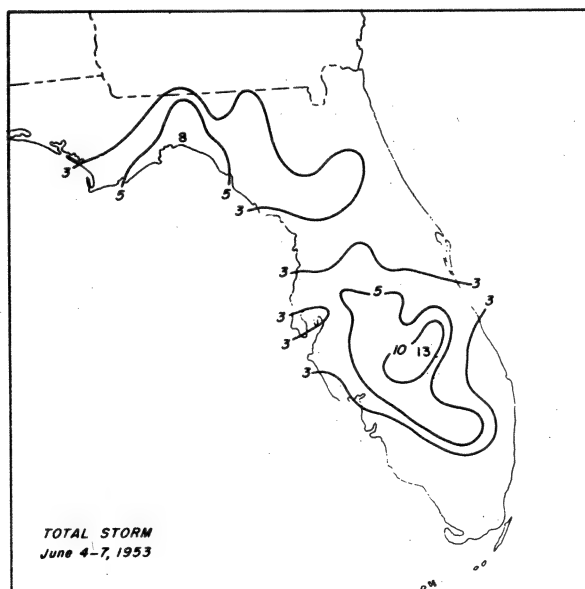
Meteorological Summary

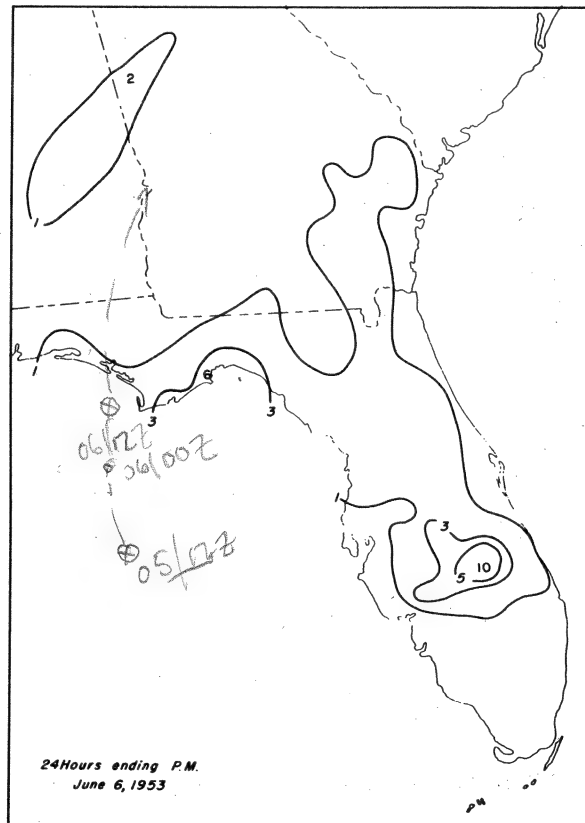
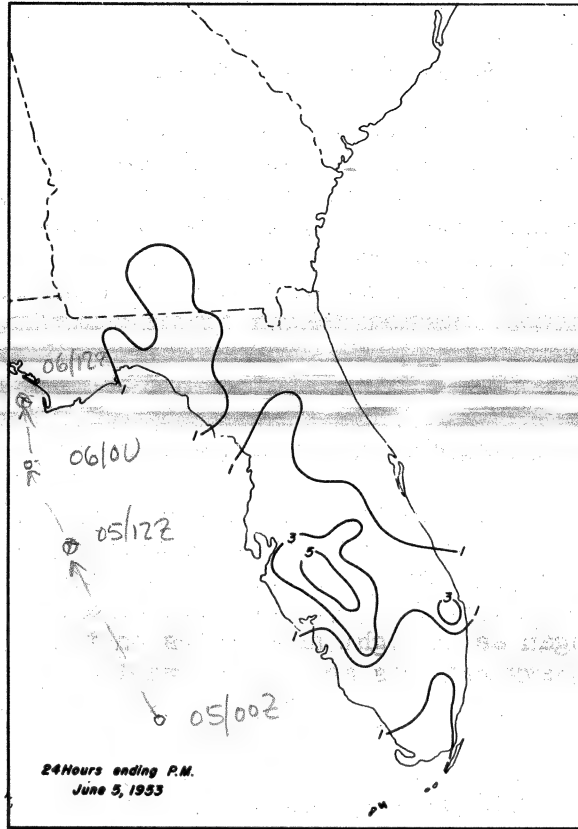
The weak tropical disturbance that crossed the Florida coast just west of Panama City at about noon of June 6 was noted on May 25 as a wave on the intertropic convergence zone in the Caribbean east of Nicaragua. The disturbance made a loop on the 26th and 27th, and by the 28th it had begun to move northward. After passing over western Cuba on the 30th the disturbance made another loop and turned to its northerly course on the 4th as it passed through the Gulf. The hurricane decreased in intensity before crossing the western Florida coast on the 6th and slowly dissipated over southeastern Alabama.

Rainfall was moderate to heavy over the central Florida Peninsula as the hurricane was passing to the west of the area on June 5 and continued through the 6th. The rainfall associated with the disturbance as it moved across the coast on the 6th was light to occasionally heavy.

Maximum Total-Storm Amount

Lake Placid, Fla.: 13.0 in.





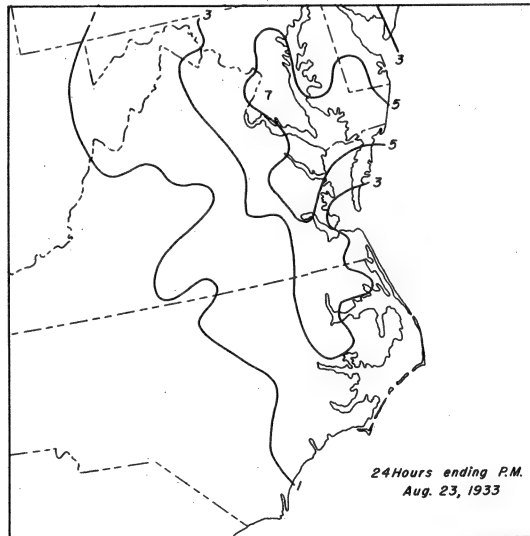
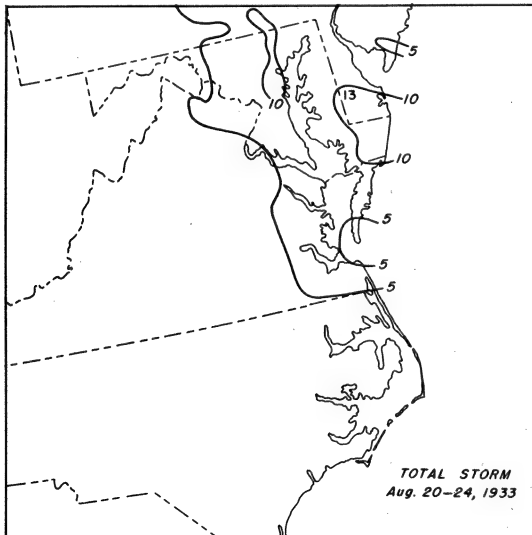
STORM OF AUGUST 20-24, 1933

Meteorological Summary

The disturbance was first observed on August 17 at 17° N and 49° W. It moved northwestward around the southern edge of the Atlantic subtropical High and reached the Virginia-Carolina coast early on August 23. Meanwhile, a Canadian polar High moved into the eastern Great Lakes region, preceded by a weak cold front that dissipated off the East Coast on the 21st. This High reinforced the westerly flow north of the disturbance and seemingly prevented the tropical disturbance from curving to the northeast. The disturbance took on extratropical characteristics over Pennsylvania* on August 24 and was caught in the circulation of a new extratropical Low moving from the northwest on the 25th. The remnants of the disturbance moved along this system as a wave formation through northern New England.

The precipitation that occurred in a wide zone extending from northeastern North Carolina to southeastern New York from August 21 to August 25 fell in two distinct periods. The first was associated with warm, moist air being lifted over a dissipating frontal surface along the Coast on the 21st. The second began as light showers on the 23rd but increased to general moderate-to-heavy rains as the tropical disturbance moved through the area on August 24.

Maximum Total-Storm Amount
Bridgeville, Del.: 13.2 in.



*See page 270, North Atlantic Section

STORM OF OCTOBER 19-21, 1926

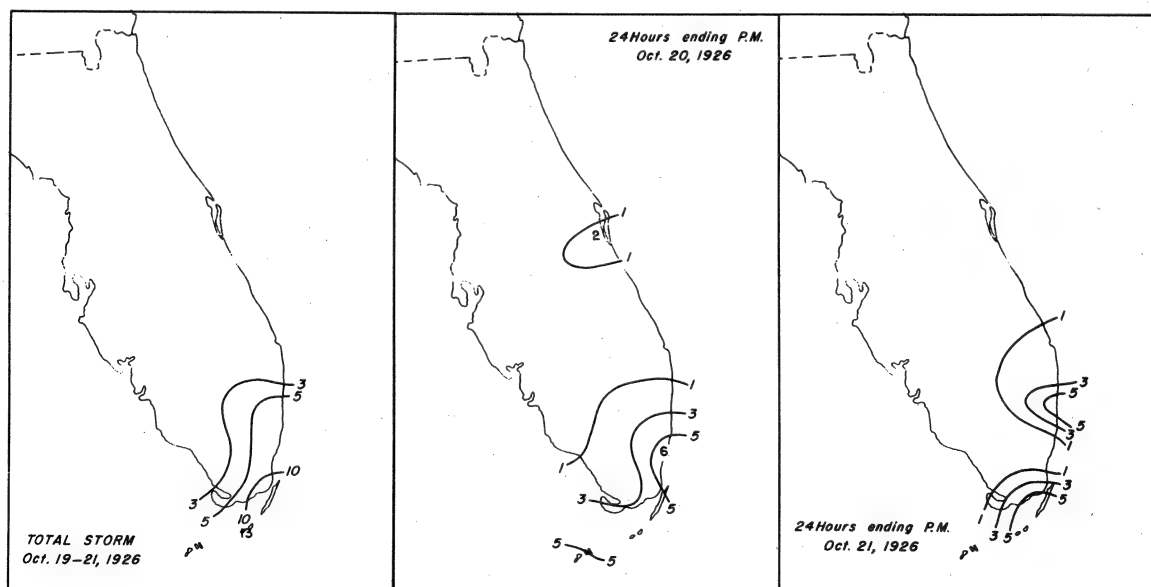
Meteorological Summary

The hurricane that passed south and east of Key West and Miami, Fla., on October 20 and October 21 was first noted north of Colon, Panama, on the 16th. The disturbance moved northwestward, recurved during the 20th over extreme western and northern Cuba, and then passed through the Florida Straits on the 21st.

Rainfall was heavy ahead and to the left of the disturbance on October 20 and October 21 as it passed to the south and east of southern Florida.

Maximum Total-Storm Amount

Long Key, Fla.: 12.9 in.



STORM OF JUNE 12-14, 1901

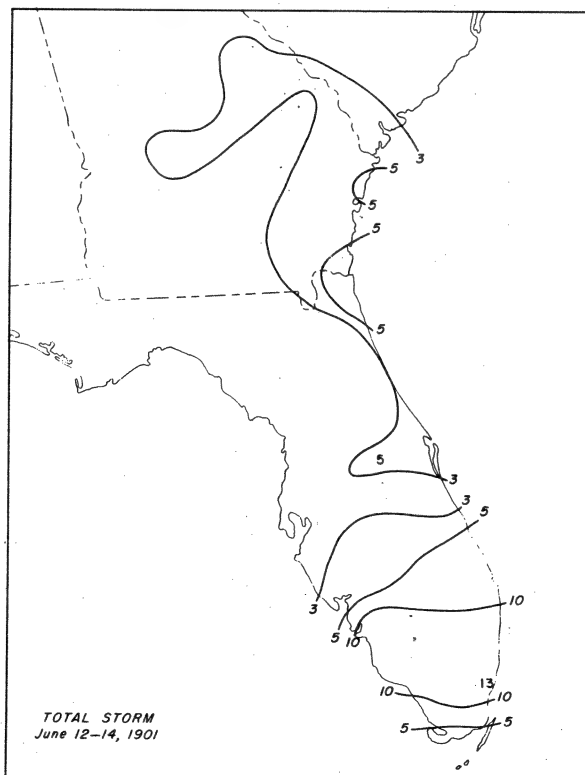
Meteorological Summary

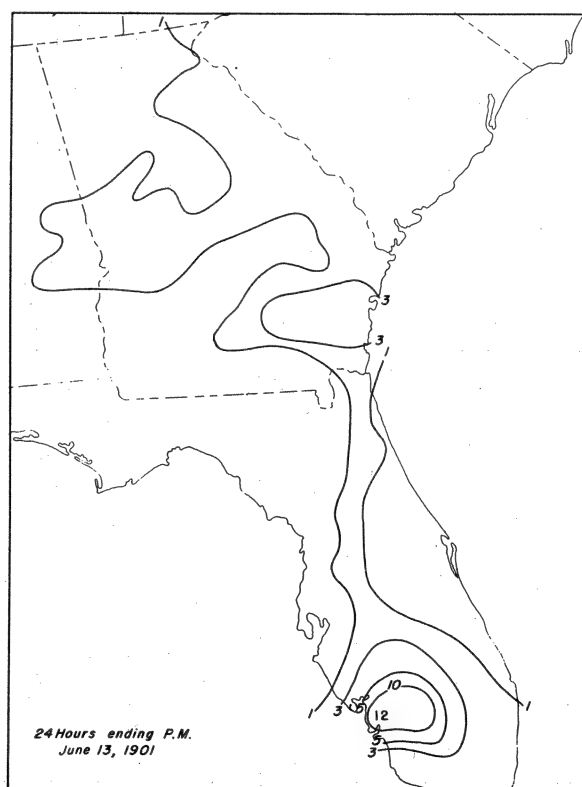
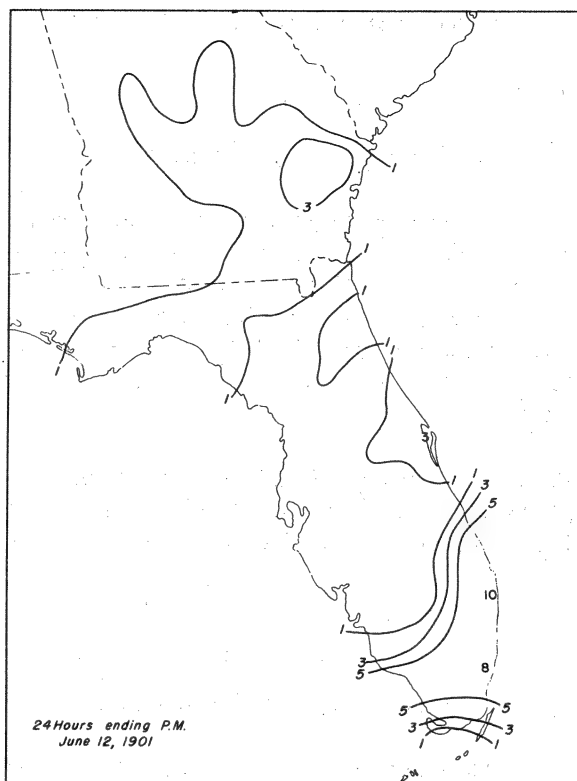
The weak tropical disturbance that entered the Gulf Coast in the vicinity of Mobile, Ala., during the night of June 13 was first observed south of Cuba on June 11. It moved across Cuba, skirted the west coast of Florida, then curved northwestward near Tampa on June 12. Pursuing its northwest course, it passed inland near Mobile, Ala., during the afternoon of June 13 then abruptly recurved to the northeast and eventually dissipated over western Georgia on June 14.

Rainfall during this period was moderate to heavy ahead and to the right of the disturbance as it skirted the coast of Florida and then diminished to such an extent that little or no rain fell in the vicinity of the disturbance as it crossed the Alabama coast. Another area of moderate showers occurred from Florida through the Middle Atlantic States on June 14 as a result of added moisture from the decaying tropical disturbance being fed into a weak convergence zone along the western edge of a high-pressure system centered over the Northeastern States.

Maximum Total-Storm Amount

Miami, Fla.: 12.5 in.





STORM OF SEPTEMBER 19-21, 1937

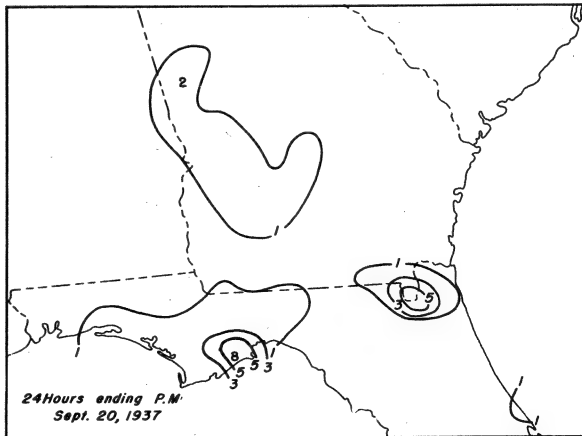
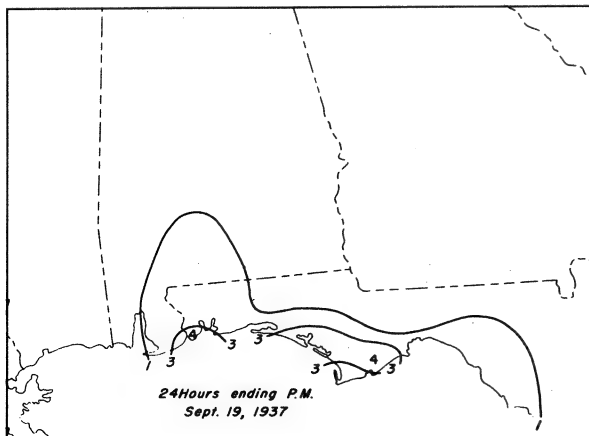
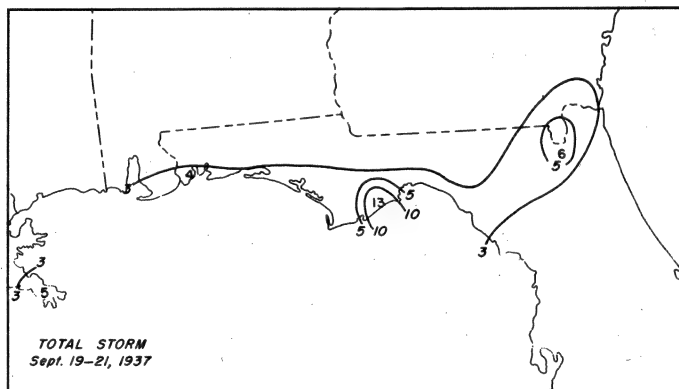
Meteorological Summary

The weak tropical disturbance that skirted the coast of southeastern Louisiana on September 19 and then entered the Florida coast near Pensacola on the morning of September 20 was first observed over the central Gulf of Mexico on the 8th. Moving northeastward through an area of weak pressure gradient, the disturbance entered the Florida coast on the morning of September 20, consolidated with a southward-moving cold front, and lost its identity by that afternoon.

Rainfall was moderate to heavy ahead of and along the immediate path of the disturbance on September 19 and September 20 as it skirted the Gulf Coast; rainfall diminished rapidly as the disturbance passed eastward.

Maximum Total-Storm Amount

Carrabelle, Fla.: 12.5 in.



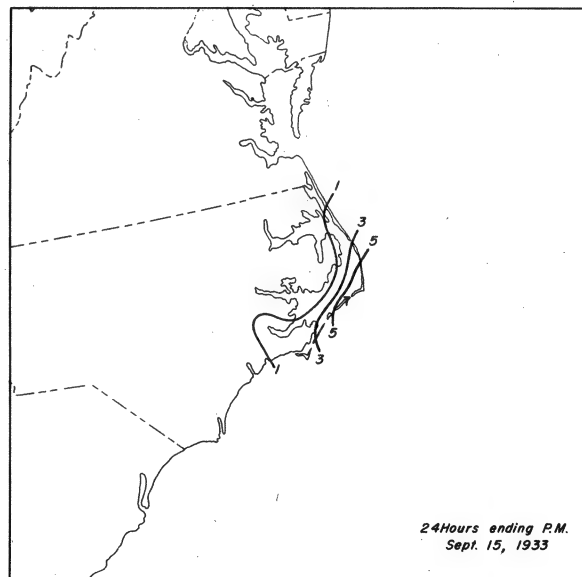
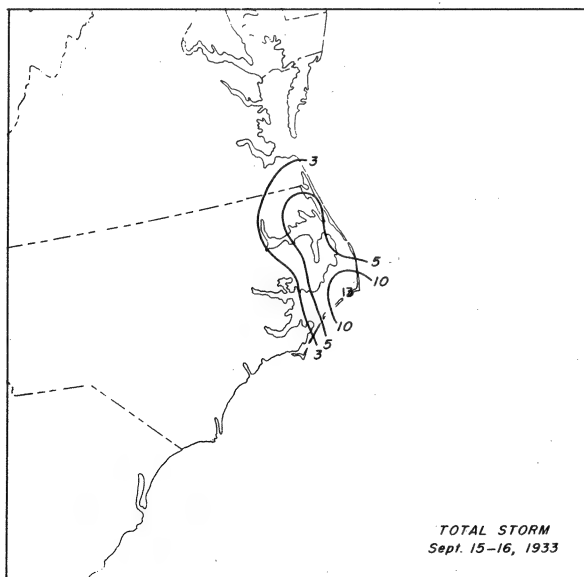
STORM OF SEPTEMBER 16-18, 1933

Meteorological Summary

The tropical disturbance that produced the heavy rains of this storm was first noted on September 8 east of the Lesser Antilles and by the 14th was a well organized storm of moderate intensity located about 400 miles east of Jacksonville. Showers fell about the perimeter of the storm, while rain of light-to-moderate intensity fell from Washington northward into southern New York and New England ahead of an east-west front. By the 15th, the hurricane, about 150 miles south of Hatteras, had pressed closer to the front which was now moving southward as a cold front. The extreme eastern portion of North Carolina received moderate-to-heavy rains in advance of the hurricane, while light-to-moderate rain continued to fall north of Washington.

By morning of the 16th, rain diminished in the Carolinas, but the entire coastal area from Virginia northward was under the direct influence of the hurricane, with general rain falling ahead of it. The front lost its identity in the hurricane circulation. Final bursts of moderate-to-heavy rain occurred in coastal New England* on the 16th and 17th as the storm accelerated north-northeastward, moving out of the zone of interest on the 18th without entering the New England coast.

Maximum Total-Storm Amount
Cape Hatteras, N.C.: 12.6 in.



*See page 282, North Atlantic Section

STORM OF OCTOBER 20-21, 1924

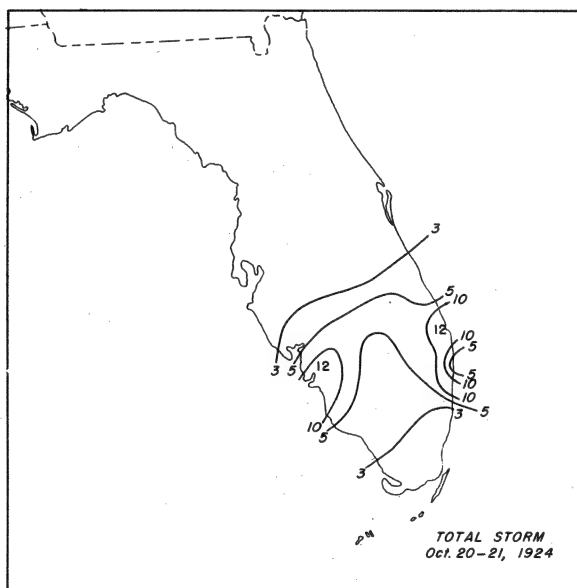
Meteorological Summary

The tropical disturbance that entered Florida on October 20 was first observed as a weak closed tropical Low over the southwestern Caribbean on October 14. It deepened and moved very slowly northward, apparently blocked by a high-pressure system centered over the Southeastern States. This high center weakened by October 19 and the tropical disturbance curved northeastward, crossing western Cuba on October 19. After passing north of the Florida Keys, the disturbance entered the Florida coast south of St. Petersburg on the morning of October 20. It then passed rapidly eastward as the forward edge of an extratropical High moved into southeastern United States.

Rainfall was moderate to heavy along and to the right of the path of the disturbance as it moved rapidly across the Florida Peninsula.

Maximum Total-Storm Amount

Ft. Myers, Fla.: 12.3 in.



STORM OF OCTOBER 4-5, 1948

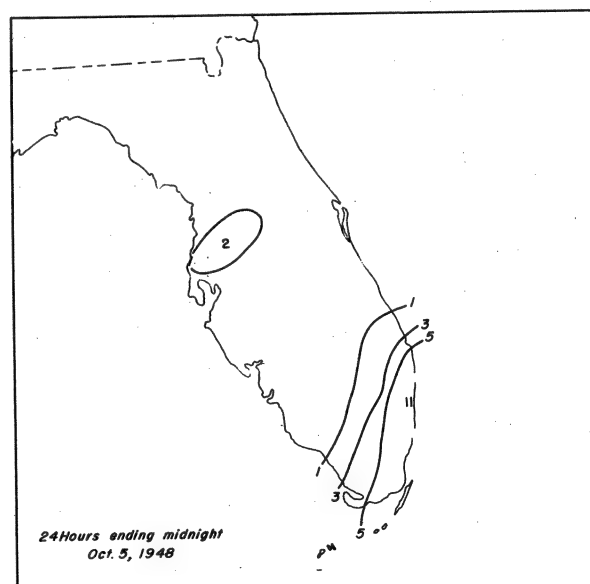
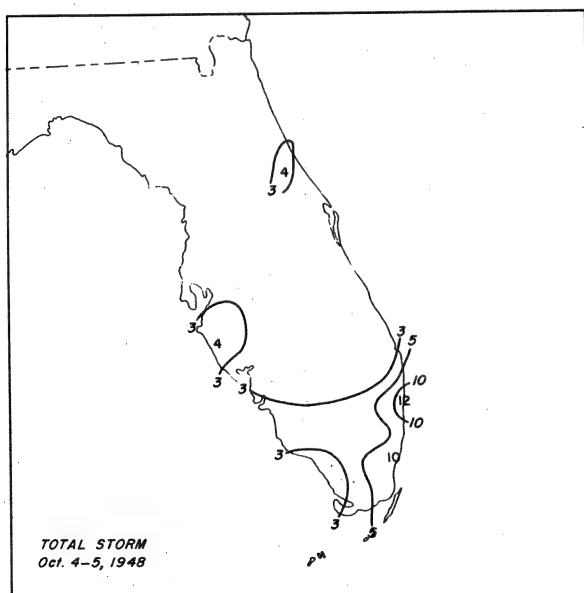
Meteorological Summary

The hurricane that moved over the Florida Keys and then passed over Miami at about 7 p.m. on October 5 was first observed in the western Caribbean near 19.6° N and 85.0° W on the 4th. The disturbance moved rapidly northeastward, passed west of Havana, Cuba, early on the 5th, then cut across the Florida Keys, and entered extreme southern Florida during the evening. At about 9:30 p.m. of the same evening the hurricane moved out into the Atlantic in the Fort Lauderdale-Pompano area. The disturbance continued northeastward over the Atlantic and crossed Bermuda on the 7th.

Rainfall was heavy along the path of the disturbance as it moved through extreme southeastern Florida during the night of October 5.

Maximum Total-Storm Amount

Boca Raton, Fla.: 12.0 in.



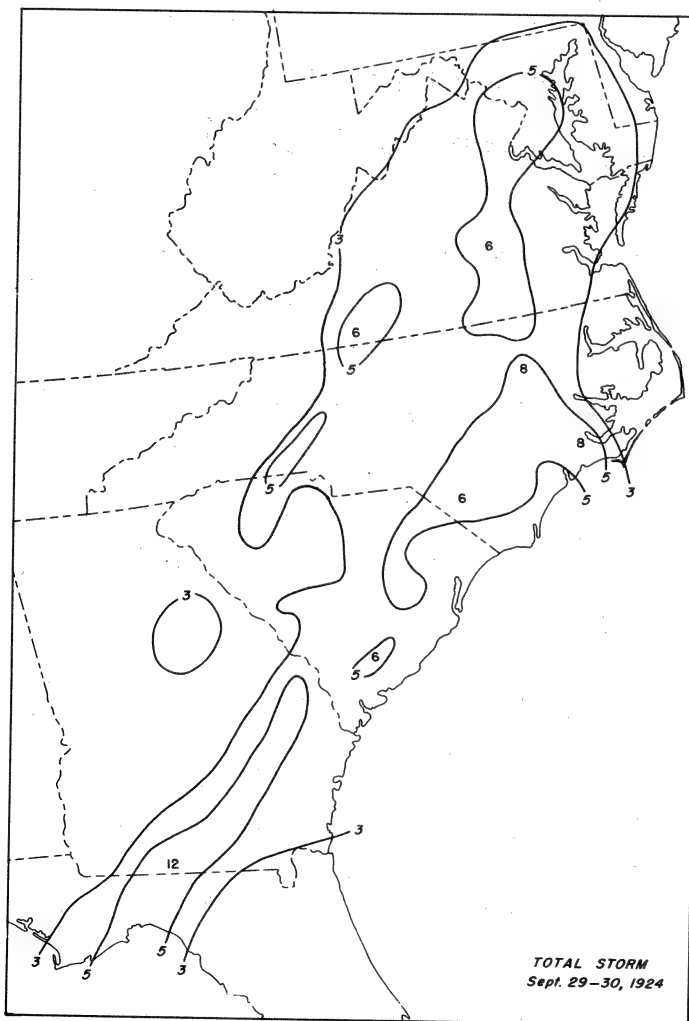
STORM OF SEPTEMBER 27-30, 1924

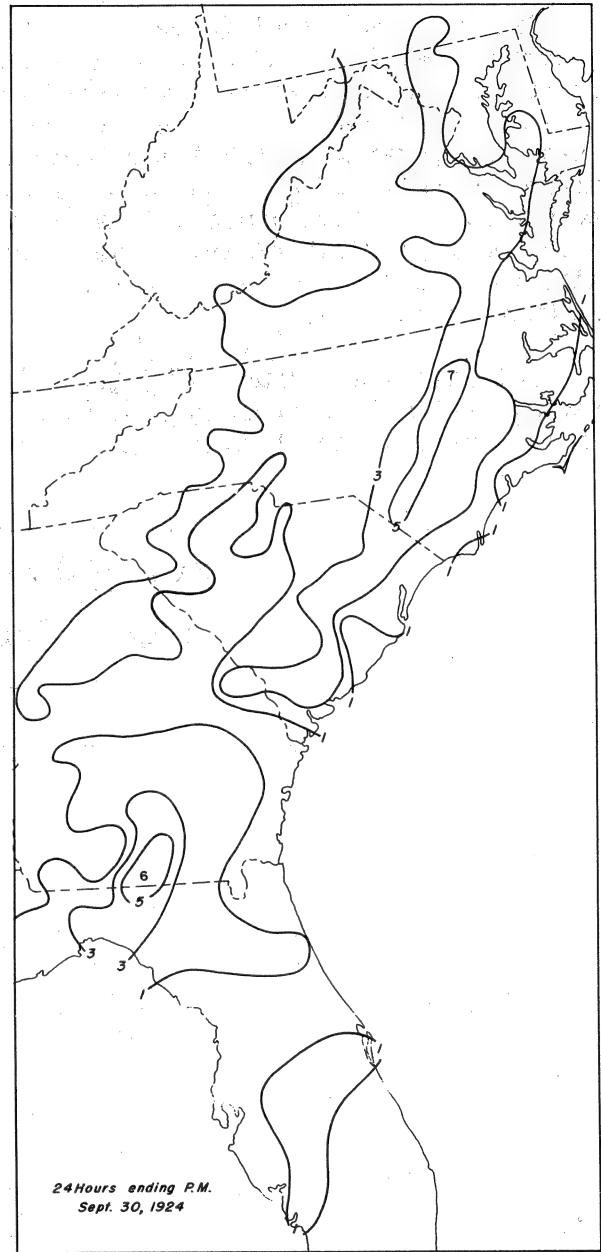
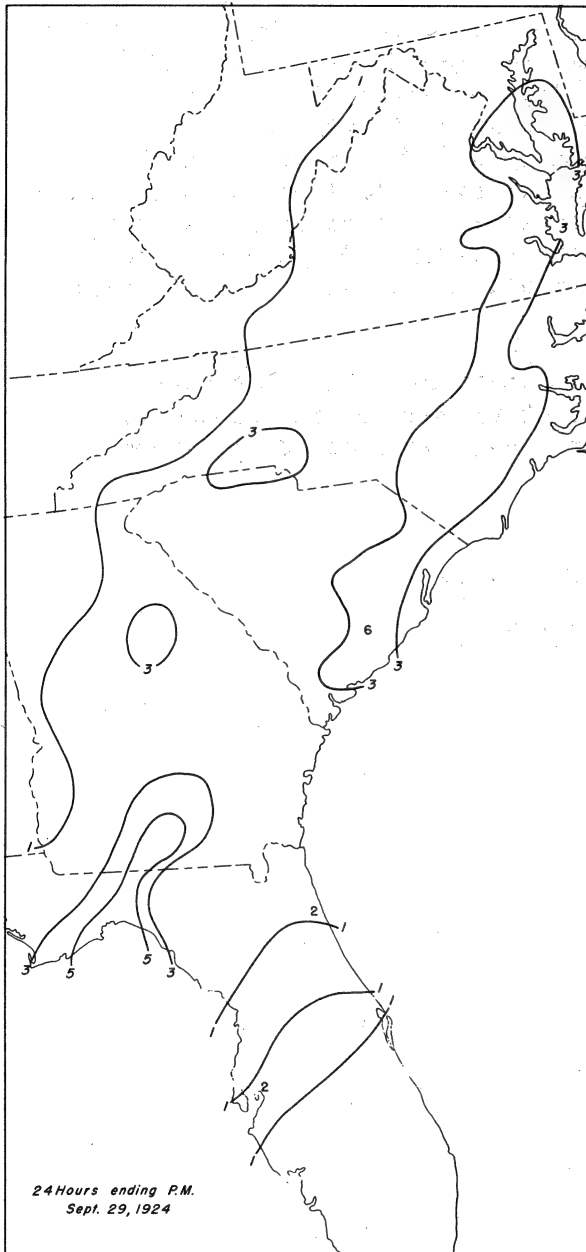
Meteorological Summary

The weak tropical disturbance that entered the Florida coast near Cedar Keys during the afternoon of September 29 was first noted in the vicinity of Swan Island on the morning of the 27th. The disturbance moved northeastward and entered the Florida coast on the 29th, continued northeastward and finally passed out to sea near Norfolk, Va., during afternoon of the 30th.

Rainfall was heavy during the period of September 29-30, with the maximum rains occurring ahead and to the left of the disturbance as it moved along the eastern seaboard.

Maximum Total-Storm Amount
Quitman, Ga.: 11.6 in.





STORM OF OCTOBER 30-NOVEMBER 8, 1935

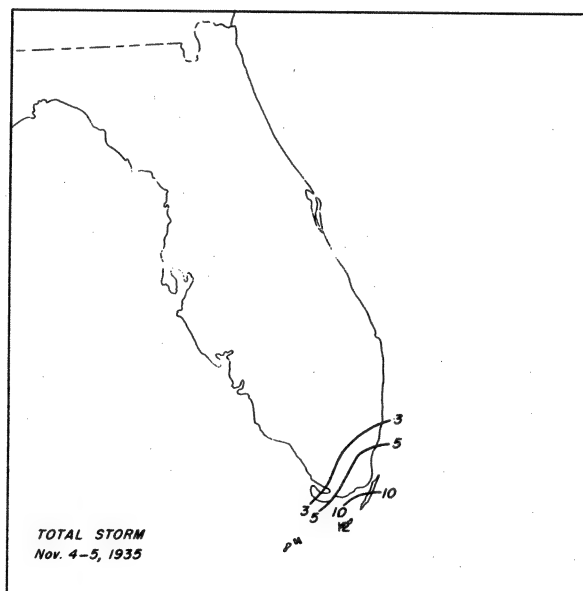
Meteorological Summary

The hurricane that passed over Miami, Fla., at about 2 p.m. on November 4 was detected a short distance east of Bermuda on October 30. The disturbance moved west-northwestward toward Cape Hatteras, N. C., on November 1 and November 2, then curved rather sharply to the south and then southwest, passing north of the Bahamas on the 3rd. The disturbance then curved to the west and crossed the Florida coast over Miami on the 4th. The storm continued moving toward the west-southwest and passed into the Gulf of Mexico near Cape Sable during the night of the 4th-5th. On passing into the Gulf, the disturbance curved northward and finally dissipated over the eastern Gulf on the 8th.

Rainfall was unusual during the period of this storm in that the heaviest rains fell after the passage of the storm center, and apparently, in the left rear quadrant rather than the front right quadrant of the storm.

Maximum Total-Storm Amount

Long Key, Fla.: 11.8 in.



STORM OF JUNE 27-30, 1909

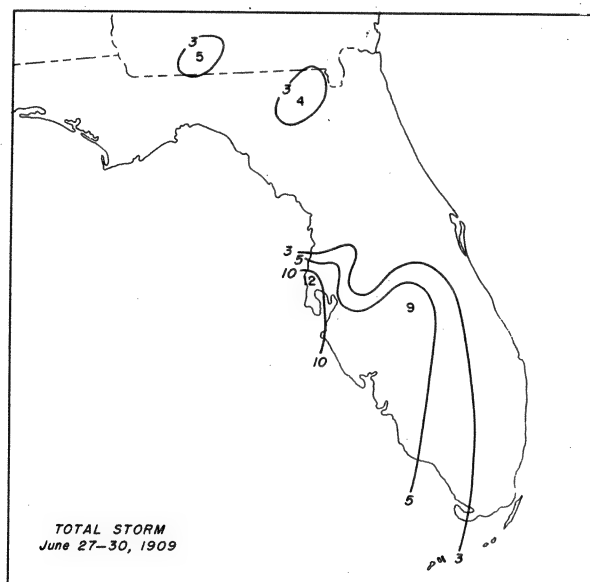
Meteorological Summary

The weak tropical disturbance that entered the coast of Florida north of Miami on the morning of June 28 was first detected in the Florida Straits on June 26. It moved slowly northwestward with the flow of the Bermuda High as a weak tropical Low, crossed the Florida Peninsula, and finally lost its identity over northwestern Florida on June 30.

Rainfall was not heavy as the disturbance moved into the coast on June 28 but increased in intensity on June 29 and June 30 over the west-central peninsula as the disturbance stagnated over that area. The heaviest 24-hour rainfall occurred at Tarpon Springs on June 30, with 11.1 inches reported. Since this amount was the only heavy rainfall on June 30, the 24-hour map for June 29 and the total storm map have been used to show the isohyetal pattern for this disturbance.

Maximum Total-Storm Amount

Tarpon Springs, Fla.: 11.6 in.



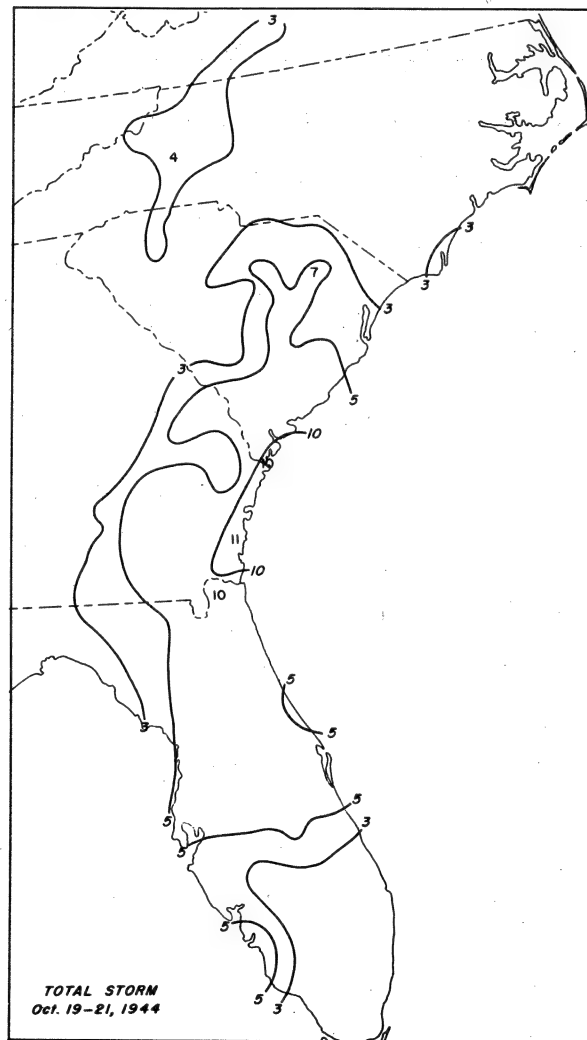
STORM OF OCTOBER 13-21, 1944

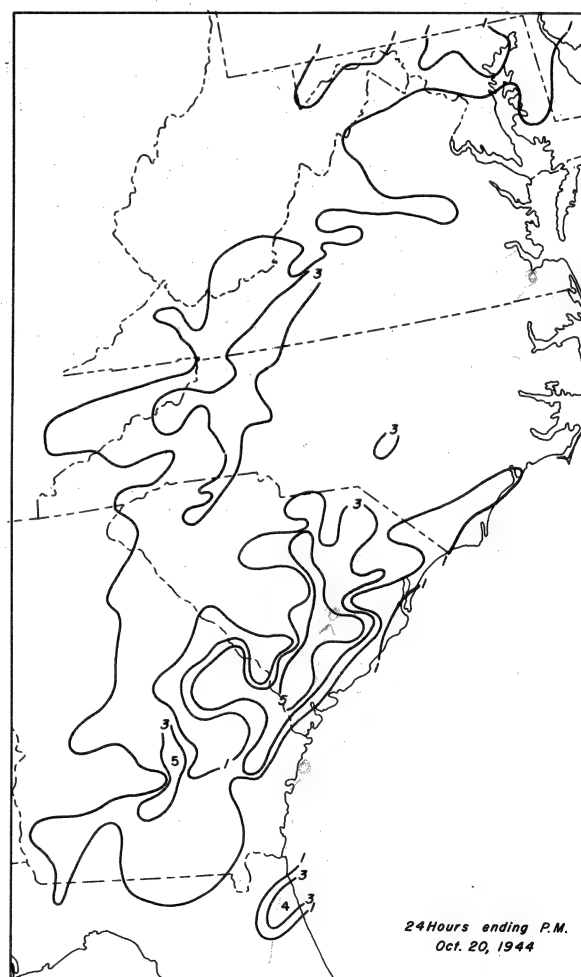
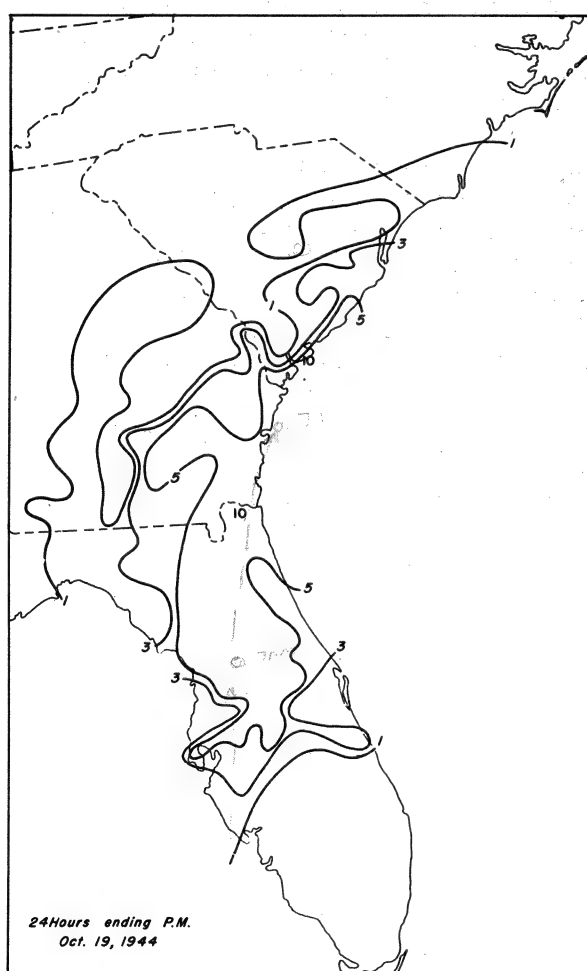
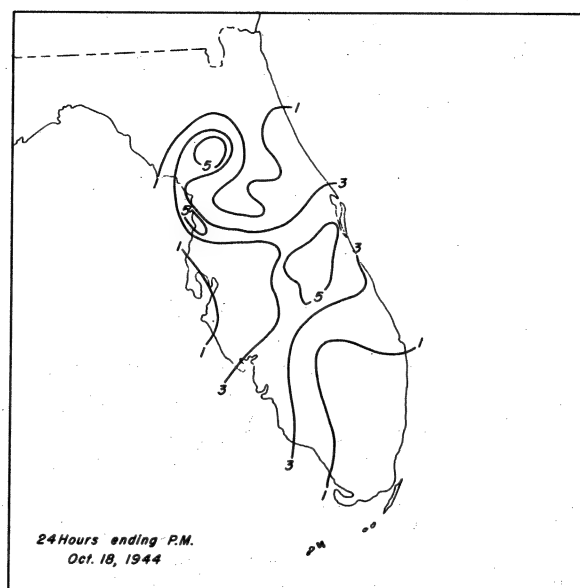
Meteorological Summary

The severe hurricane that entered the Florida coast south of Sarasota at about 3 a.m. on October 19 was first observed over the central Caribbean on the 12th. The disturbance deepened as it moved slowly northward until the 15th when it curved to the northwest. On the 17th it accelerated, passing over western Cuba during the night of the 17th-18th. Continuing on the same course, the hurricane entered western Florida on the night of the 18th-19th, passed briefly out to sea off Jacksonville, and re-entered the coast near Savannah, Ga., during the night of the 19th-20th. The hurricane passed through the Carolinas and Virginia, moved out to sea again off the eastern shore of Maryland, passed between Cape Cod and Nantucket, and reached Nova Scotia on the 21st.

Heavy rainfall began over west-central Florida on October 18 in advance of the hurricane and spread northward along the path of the disturbance as it moved through the Southeastern States.

Maximum Total-Storm Amount
Brunswick Airport, Ga.: 11.4 in.





STORM OF SEPTEMBER 11-18, 1945

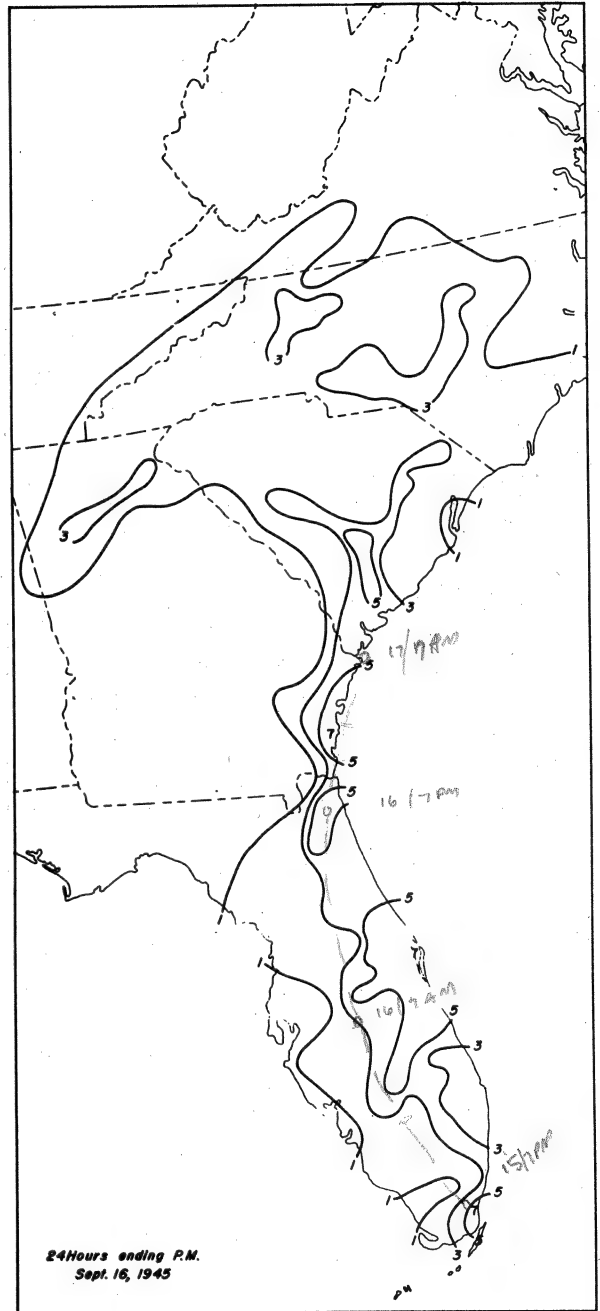
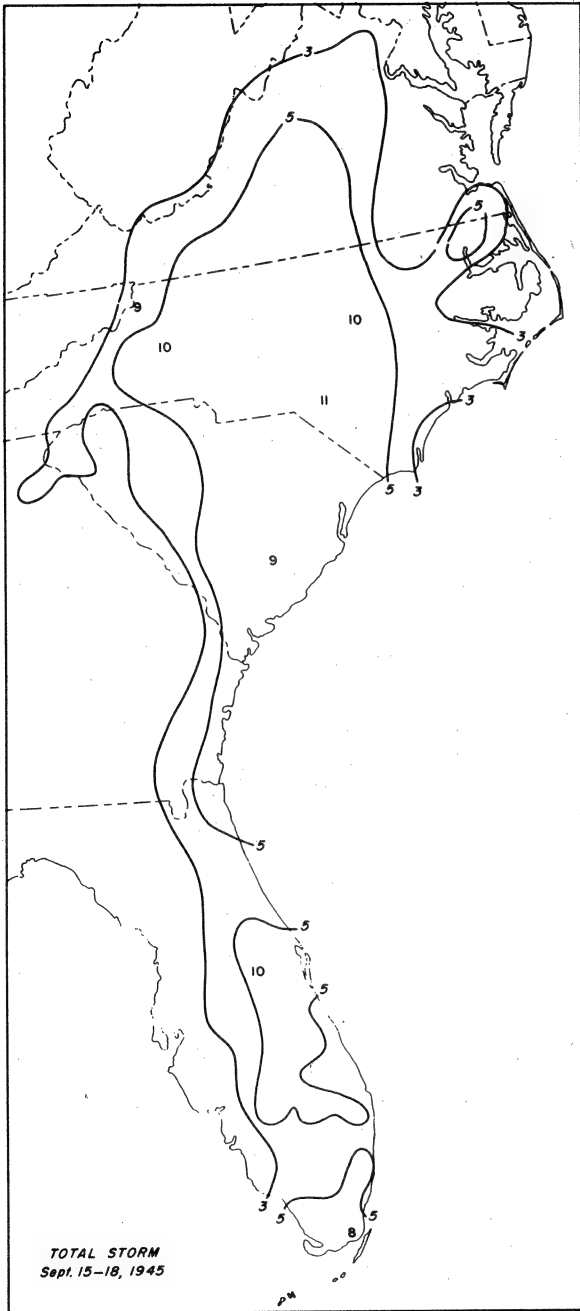
Meteorological Summary

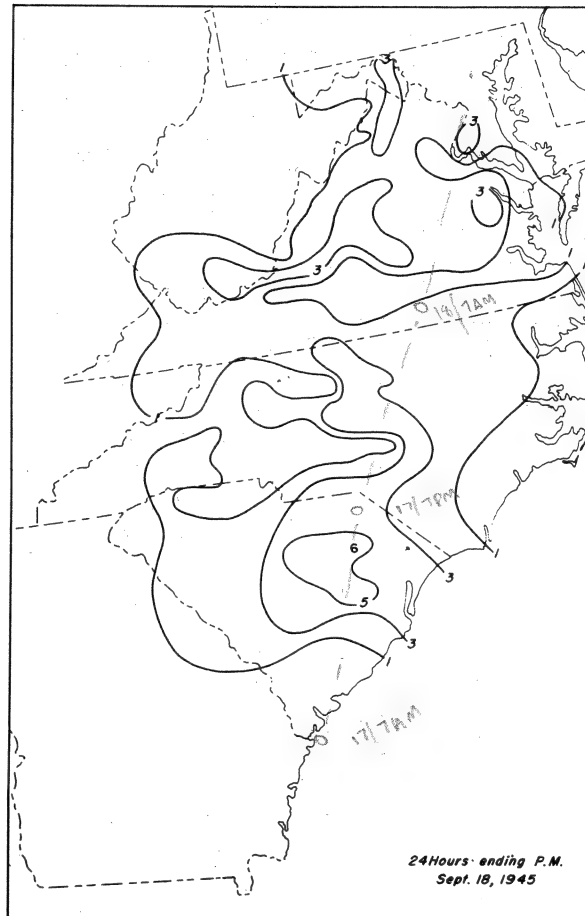
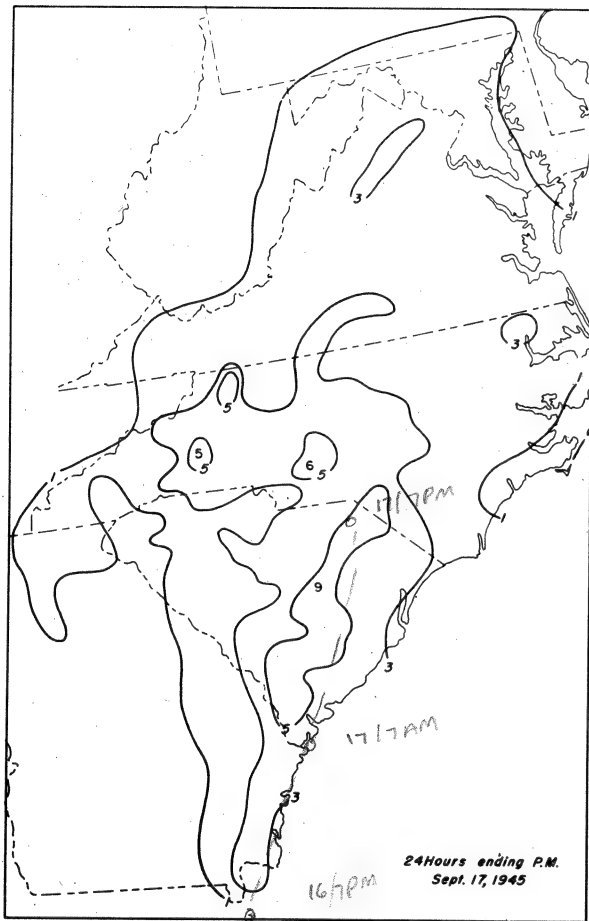
The severe hurricane that entered the Florida coast south of Miami at about 5 p.m. on September 15 was first observed east of the Leeward Islands on the 11th. The disturbance moved west-northwestward, passed north of Puerto Rico on the 13th, gradually curved to the northwest while passing over Great Bahama Bank during the night of the 14-15th, and crossed the southern Florida coast on the 15th. Moving inland, the hurricane passed almost directly over Homestead, Fla., traversed the swamplands of the Everglades, then decreased slightly in intensity and passed into the Atlantic near St. Augustine during the night of the 16-17th. After skirting the Georgia coast, the disturbance reentered the mainland near Parris Island, S. C., on the 17th. The hurricane lost most of its force as it traveled through the Carolinas and Virginia, and then continued northeastward through New England, finally dissipating over Nova Scotia on the 19th.

Rain of moderate-to-heavy intensity fell from Florida to New England during the period of this storm. The greatest amounts occurred ahead and along the path of the disturbance as it moved northward; however, the intensity of the rainfall diminished after the disturbance passed through Virginia. On September 18 there were some moderate-to-heavy showers over the Carolinas and Virginia in the moist tropical air that still persisted there and over New England as the disturbance passed through that region.

Maximum Total-Storm Amount

Laurensburg, N. C.: 11.2 in.





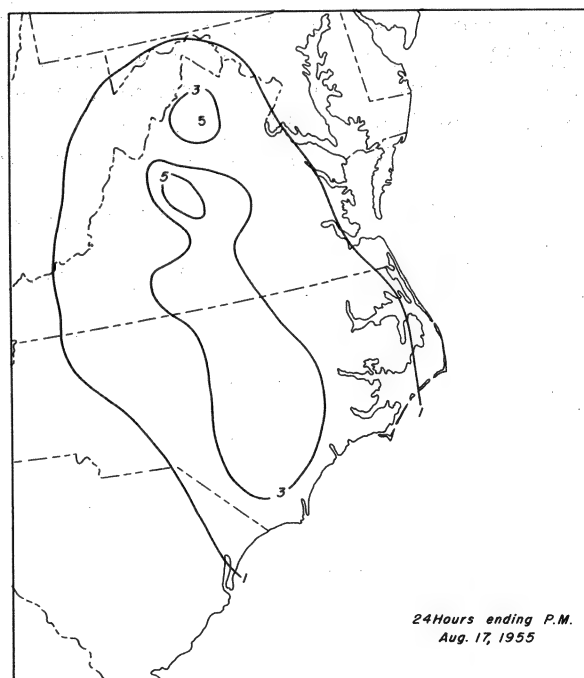
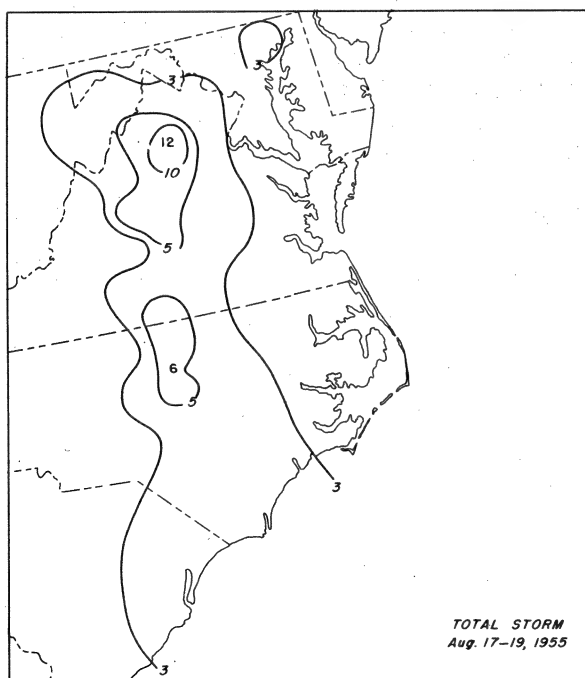
STORM OF AUGUST 17-20, 1955 (Diane)

Meteorological Summary

The tropical disturbance that entered the North Carolina coast on the morning of August 17 as a severe hurricane was first observed as a cyclonic circulation northeast of the Leeward Islands on August 10. It intensified and followed a cyclonic path until August 13, then shifted to a more west-northwesterly direction, toward the North Carolina coast. After crossing the North Carolina coast near Wilmington, the hurricane continued northwestward, reaching Lynchburg, Va., by midnight. It then curved northeastward, passing through southeastern Pennsylvania*, southern New Jersey, south of Long Island, and finally between Martha's Vineyard and Nantucket, Mass., as it moved out to sea on the afternoon of the 19th.

Rainfall associated with this tropical disturbance was heavy, with the greatest amounts occurring in the vicinity of the hurricane path. The rainfall followed a normal distribution of maxima ahead and to the right of the disturbance until it curved to the northeast during the night of the 17th. From this point on the rains were heavier to the left of the center as it passed from northern Virginia to southern New England. The continued inflow of tropical air, plus orographic lifting over the foothills of Pennsylvania and southern New England, combined to produce record rainfall in southeastern Pennsylvania and New York, northern New Jersey, and southern New England on the 18th and 19th as the disturbance moved south of that area.

Maximum Total-Storm Amount
Big Meadows, Va.: 11.5 in.



*See page 264, North Atlantic Section

STORM OF OCTOBER 5-16, 1954 (Hazel)

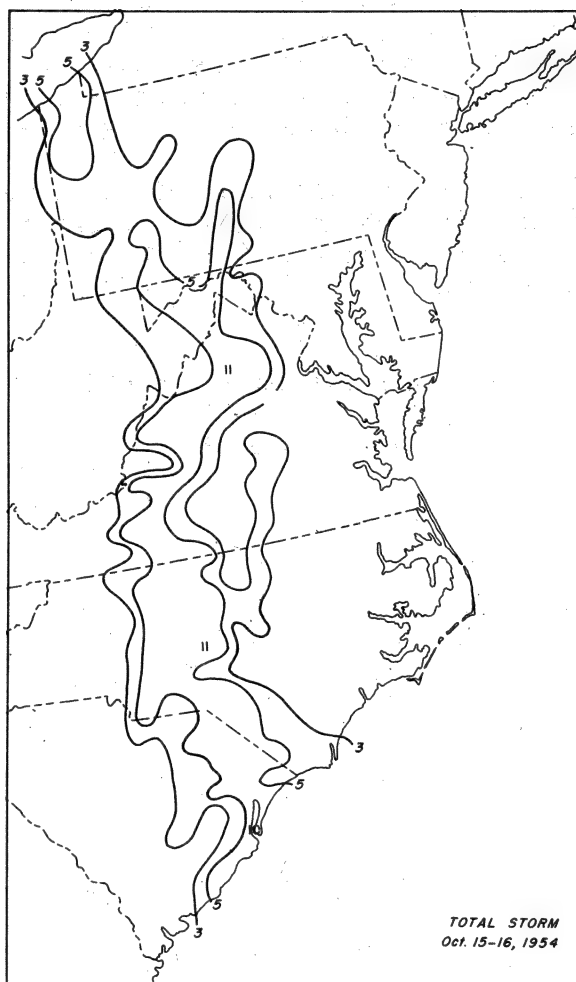
Meteorological Summary

The severe hurricane that entered the South Carolina coast near Myrtle Beach at about 9 a.m. on October 15 was first observed at 12° N and 61.2° W on the 5th. The hurricane passed north of the Windward Islands into the Caribbean on the 5th and pursued a west-northwestward course until the night of the 9th-10th when it curved to the north. From the night of the 10th-11th the hurricane moved on a north-northeastward course until it passed through the Windward Channel into the southeastern Bahamas on the morning of the 13th. It changed course again to north, then to north-northwest on the 13th, and continued on that course until it entered the South Carolina coast on the 15th. After crossing the coast the hurricane merged with an eastward-moving cold front and advanced along the front, maintaining its intensity as it passed through the central Carolinas, Virginia, Pennsylvania, and New York into Ontario, Canada, by night of the 15th-16th.

Rainfall was heavy along a narrow band from South Carolina northward to east-central Canada. The heaviest rains occurred along this narrow band ahead and to the left of the disturbance as it moved northward along the frontal zone on October 15. Rainfall in this storm had all the factors for producing extremely heavy amounts - orographic lifting, moist, tropical air, and frontal instability. Since the disturbance moved so rapidly, however, rainfall amounts were not as extreme as they might have been had the disturbance moved more slowly. Since the hurricane passed from South Carolina to the eastern Great Lakes in less than 24 hours, only the total-storm map for the 15th-16th has been used to show the rainfall pattern.

Maximum Total-Storm Amount

Big Meadows, Va.: 11.2 in.



STORM OF AUGUST 11-15, 1953 (Barbara)

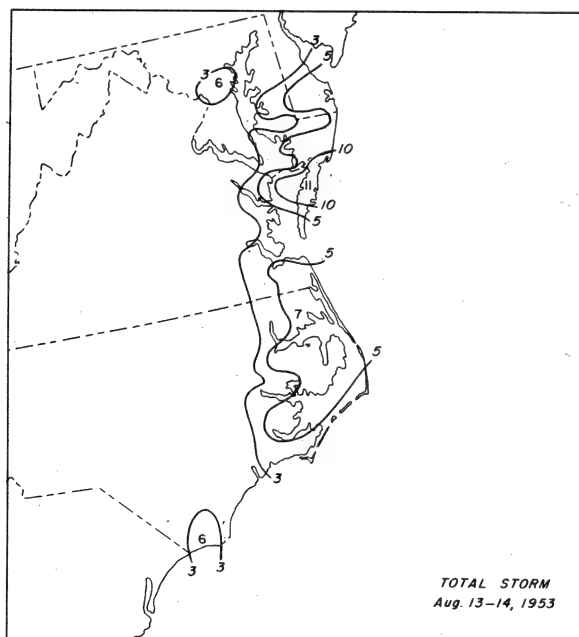
Meteorological Summary

The hurricane that entered the North Carolina coast between Morehead City and Ocracoke at about 10 p.m. on August 13 was located near 29° N and 76° W on the 12th. The disturbance moved northward and intensified on the 12th and 13th before crossing the North Carolina coast on the night of the 13th-14th and then began a slow curve to the northeast, leaving the coast near the North Carolina-Virginia border at about 6 a.m. on the 14th.

Rainfall was heavy along and to the right of the path of the hurricane for the short period of time it took it to pass through the coastal regions of North Carolina and Virginia on the night of August 13-14.

Maximum Total-Storm Amount

Onley, Va.: 11.1 in.



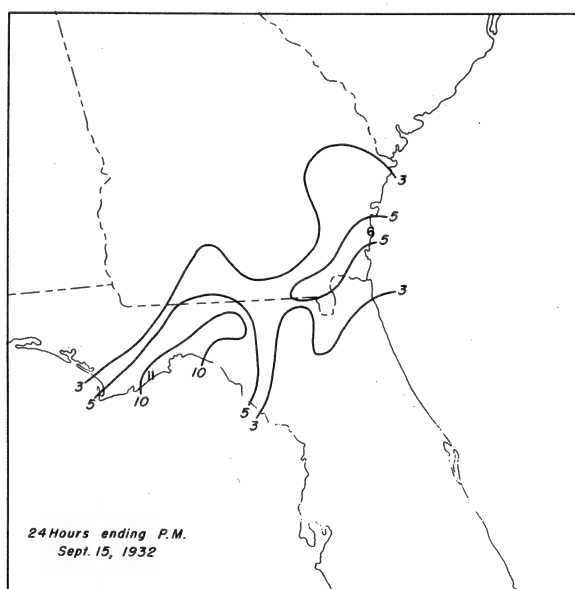
STORM OF SEPTEMBER 14-15, 1932

Meteorological Summary

The tropical disturbance that entered northern Florida* near Apalachicola was first observed over the central Gulf on September 11. It moved very slowly eastward around the southern edge of a high-pressure center that was moving eastward until September 14 when it moved into a weak frontal zone as a wave and skirted the Atlantic Coast as a fairly intense extratropical Low.

Rainfall in the Florida area was heavy from the night of September 14 to the night of September 15 and fell along the path of the disturbance as it moved across the northern Florida Peninsula. Rainfall was also evident along the eastern seaboard in the form of light-to-moderate showers as the disturbance moved along the East Coast. Because of the extratropical characteristics of the storm after it passed through Florida, however, only the Florida isohyetal pattern has been included in this part of the study. Heavy rains occurred over the North Atlantic region on the 16th and 17th as the disturbance moved along the New England Coast.

Maximum Total-Storm Amount
Carrabelle, Fla.: 11.1 in.



*See page 276, North Atlantic Section

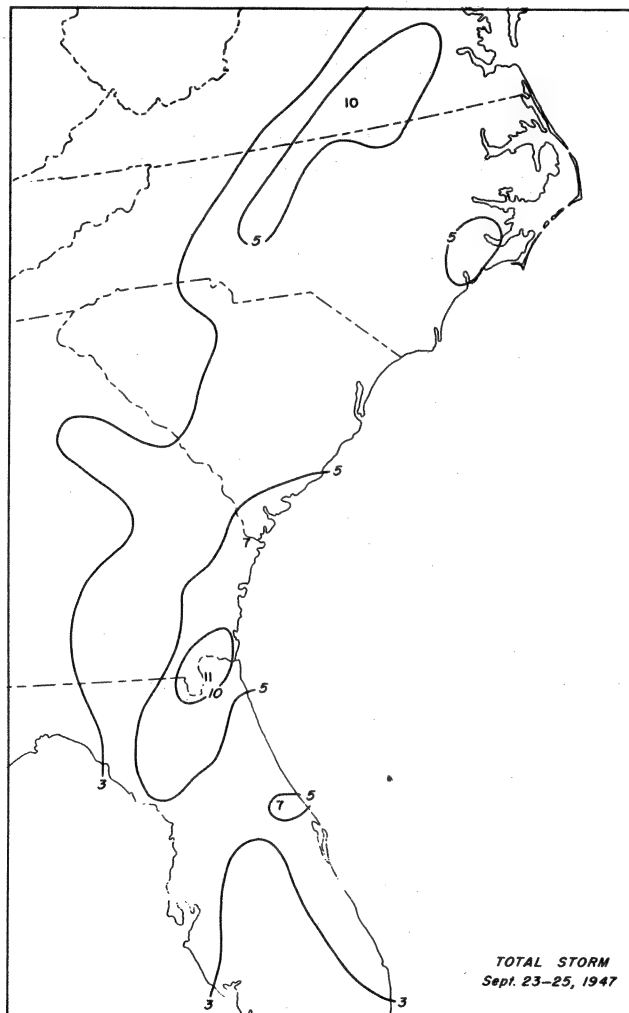
STORM OF SEPTEMBER 20-25, 1947

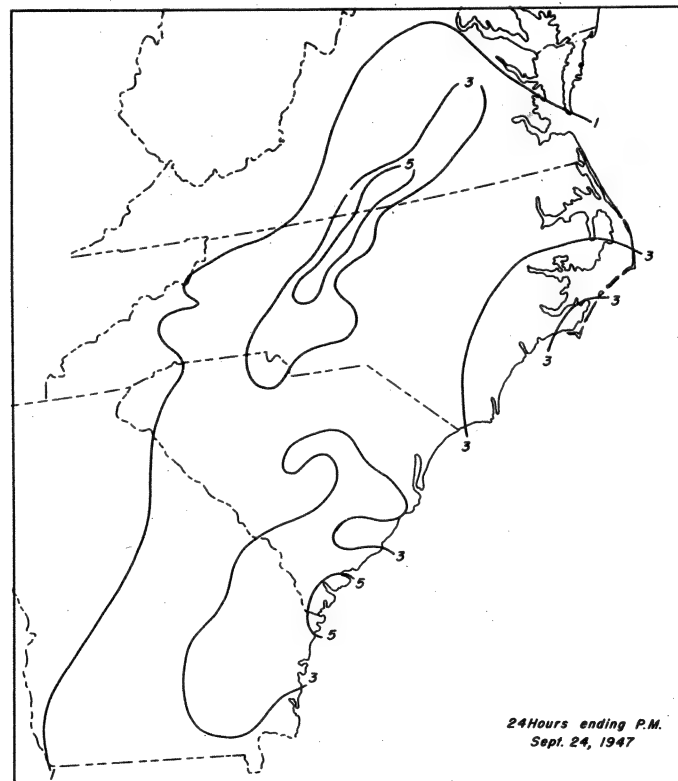
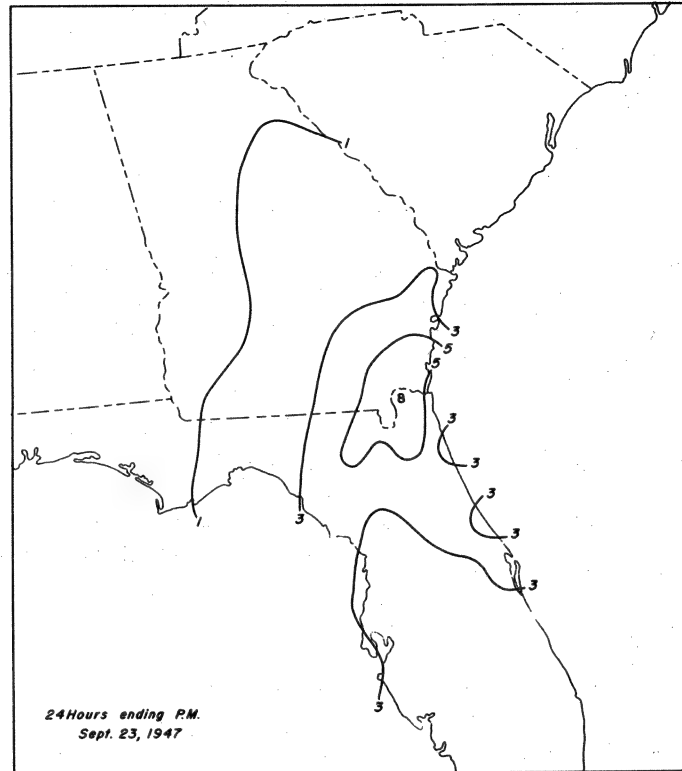
Meteorological Summary

The tropical disturbance that crossed the Florida west coast between Tampa and Cedar Keys at about 6 p.m. on September 23 was first observed over the eastern Caribbean on the 20th. The disturbance moved northwestward, crossed western Cuba during the night of the 21st, and on the 22nd entered the Gulf, where it intensified. The disturbance then curved north-northeastward, crossed the Florida Peninsula and with diminishing intensity, passed through the Southeastern States. What remained of the disturbance moved into the Atlantic between the North Carolina and Virginia Capes on the morning of the 25th.

Rainfall was heavy along the path of the disturbance in Florida and Georgia on September 23 and to the left of the disturbance as it moved through the Carolinas east of the Appalachians on the 24th.

Maximum Total-Storm Amount
Hilliard, Fla.: 11.1 in.





STORM OF SEPTEMBER 18-25, 1948

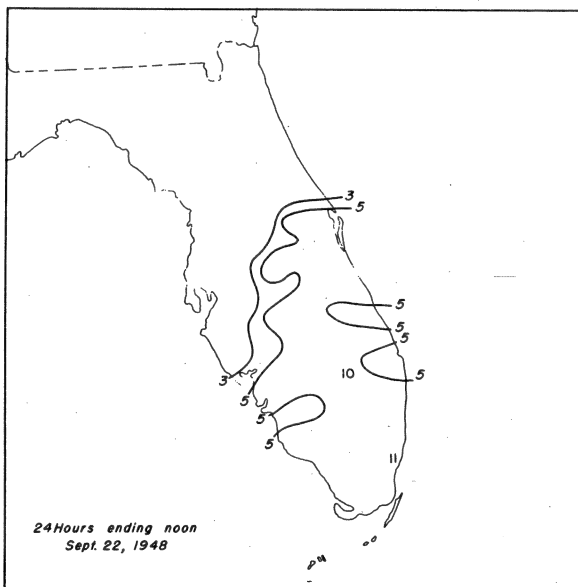
Meteorological Summary

The severe hurricane that passed over the Florida Keys and then entered southwestern Florida east of Everglades City on September 21 was first observed in the western Caribbean between Jamaica and Grand Cayman Island on the 18th. The hurricane moved very slowly, gradually turning toward the north-northeast and passed over western Cuba on the 20th. The hurricane then crossed the Florida Straits and southern Florida, passing into the Atlantic at Jensen Beach near Stuart on the morning of the 22nd.

Rainfall was heavy in the forward quadrants of the hurricane as it passed through southern Florida on the night of September 21-22.

Maximum Total-Storm Amount

Miami (Weather Bureau Airport), Fla.: 11.0 in.



STORM OF AUGUST 20-31, 1950 (Baker)

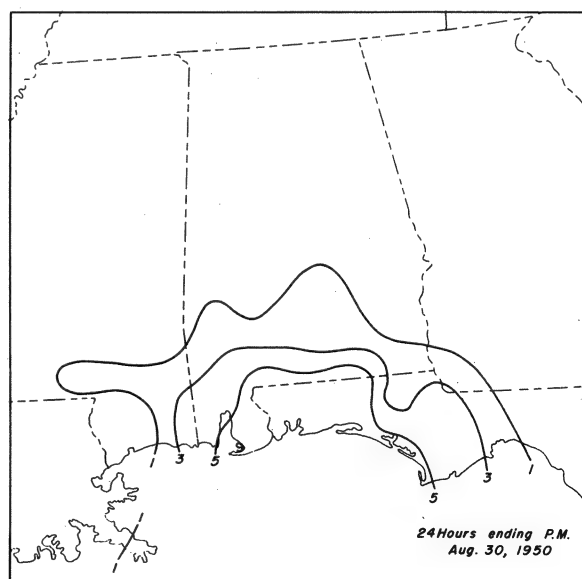
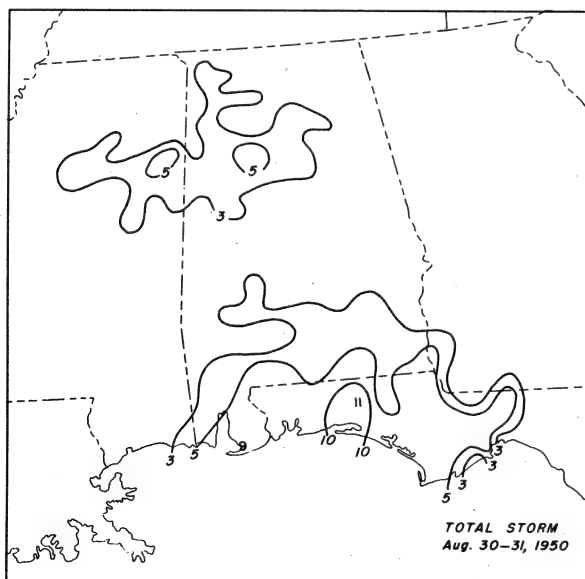
Meteorological Summary

The hurricane that entered the Gulf Coast between Pensacola, Fla., and Mobile, Ala., during the night of August 30-31, was first observed east of the Leeward Islands on the 20th. Moving west-northwestward the disturbance passed over Antigua Island on the 21st, then decreased in intensity as it passed over Puerto Rico on the 23rd. On the 25th the disturbance crossed eastern Cuba into the Caribbean. The center developed slowly and moved across western Cuba into the Gulf, where it made a curve to the north and increased to hurricane intensity. Traveling on a northerly course, it crossed the Alabama coast on the night of August 30-31, weakened rapidly as it moved north-northwestward, and dissipated over western Kentucky during the afternoon of the 31st.

Rainfall was moderate to heavy ahead and to the right of the hurricane as it moved inland on August 30. Another smaller rain maximum occurred in the form of moderate showers as the weakened hurricane passed through northern Alabama early on the 31st.

Maximum Total Storm Amount

De Funiak Springs, Fla.: 10.7



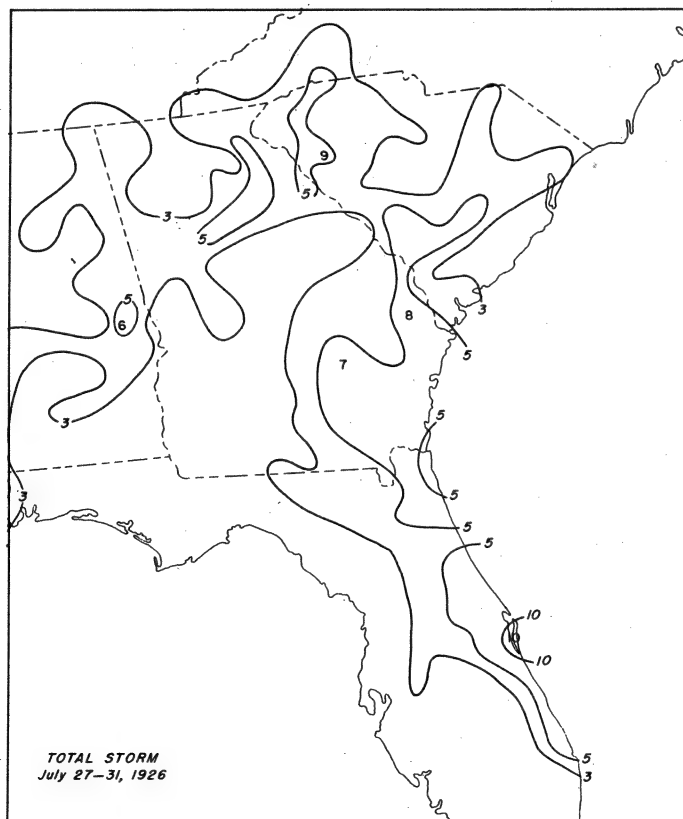
STORM OF JULY 27-31, 1926

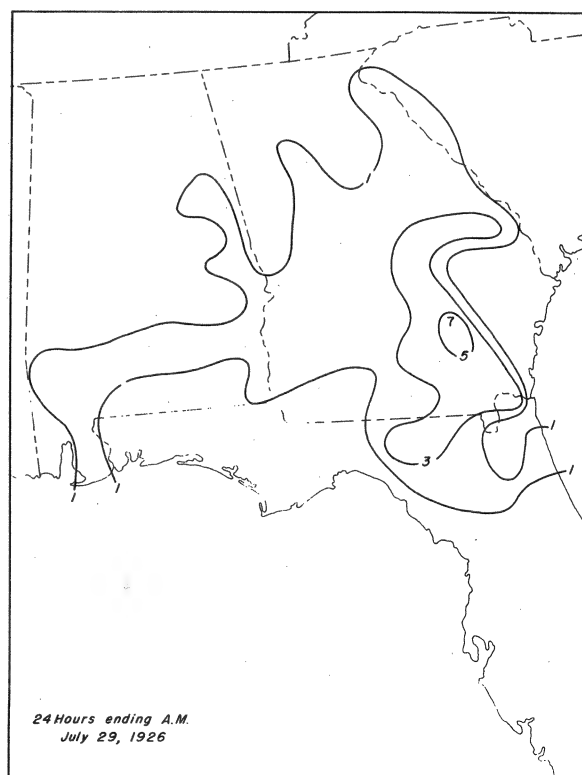
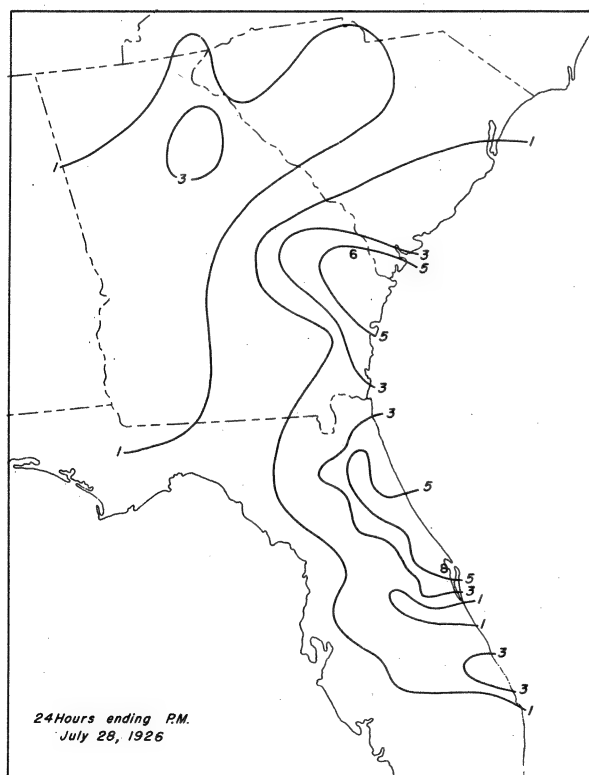
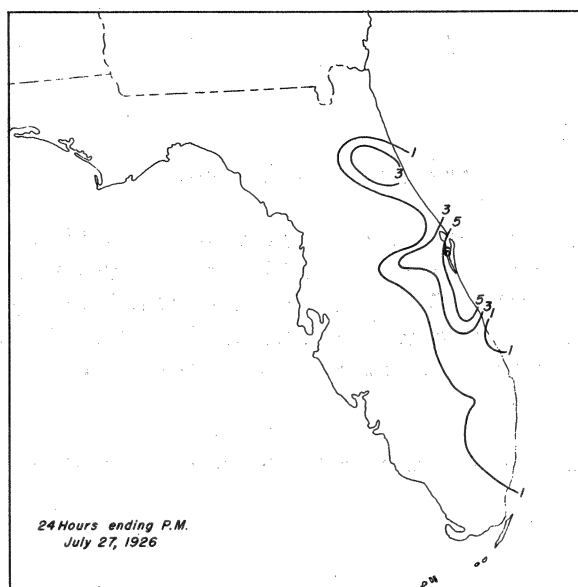
Meteorological Summary

The tropical disturbance that entered the mainland north of Jacksonville, Fla., on July 28 was first observed over the south-central Atlantic on July 22. The disturbance moved rapidly west-northwestward, passing over Haiti on July 26. Meanwhile, the Bermuda High had shifted eastward as its western edge was weakened by a series of wave disturbances that were moving along a frontal zone extending from Texas to Carolina. After the tropical disturbance deepened, it moved north-northwestward through an area of weak pressure gradient; it skirted the Florida east coast, then entered the mainland north of Jacksonville on July 28. The disturbance then curved sharply to the west-northwest, finally losing its identity over northern Mississippi on July 31.

Rainfall was heavy throughout the Southeastern States during this period. The maximum centers shown on the total-storm isohyetal map correspond to the path of the tropical disturbance with one exception - the maximum center over western South Carolina and northeastern Georgia, caused by orographic lifting of the moist tropical air on July 27 and July 28.

Maximum Total-Storm Amount
Merritts Island, Fla.: 10.4 in.





STORM OF OCTOBER 8-10, 1953 (Hazel)

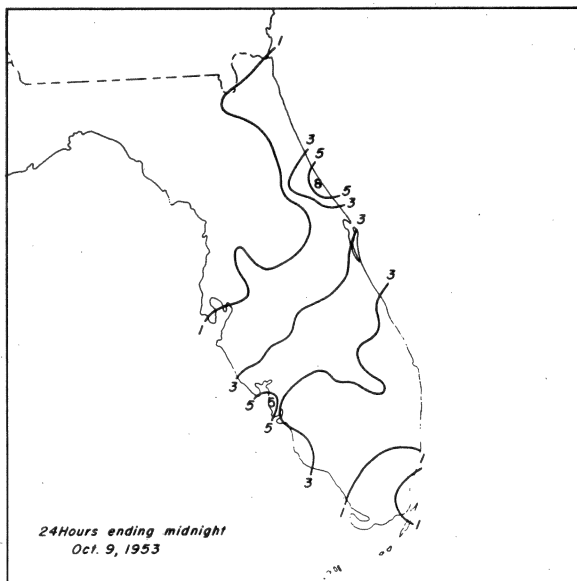
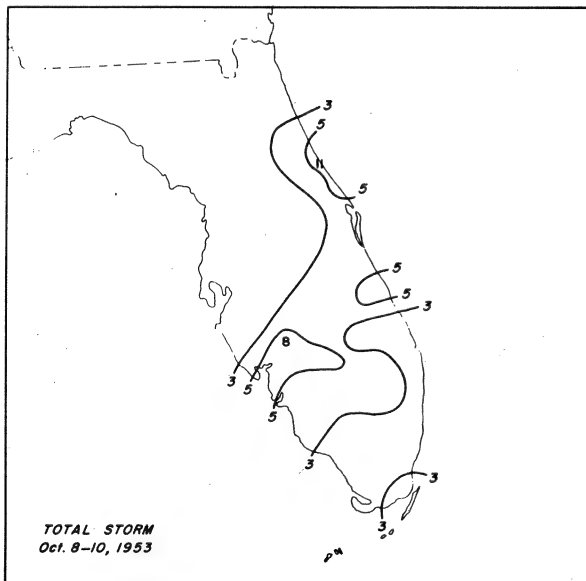
Meteorological Summary

The hurricane that moved into Florida through Charlotte Harbor, between Ft. Myers and Punta Gorda at about 11:30 a.m. on October 9 formed in the Yucatan Channel on the 8th. The disturbance moved northeastward and entered the Florida Peninsula during the morning of the 9th. The hurricane then moved rapidly northeastward and passed into the Atlantic near Vero Beach the same night.

Rainfall was heavy along the path of the hurricane as it crossed the Peninsula on October 9.

Maximum Total-Storm Amount

Daytona Beach, Fla.: 10.5 in.



STORM OF AUGUST 25-SEPTEMBER 3, 1932

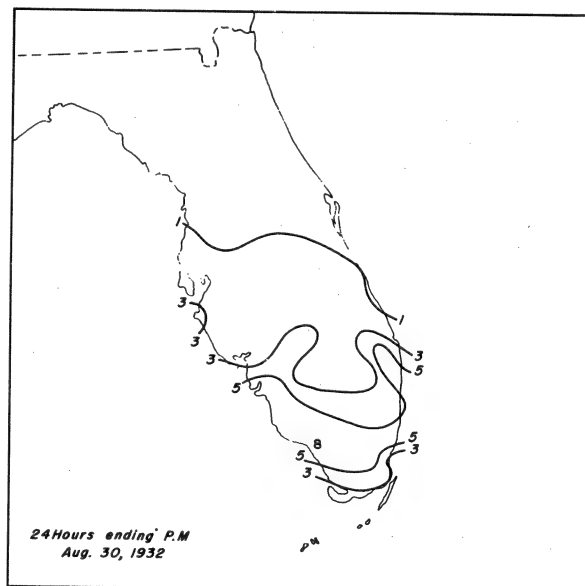
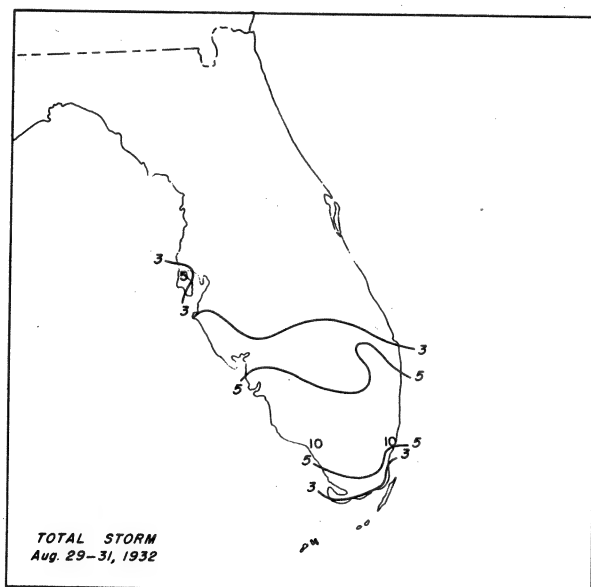
Meteorological Summary

The hurricane that passed 20 miles south of Miami, Fla., shortly before midnight of August 29 was observed southeast of Puerto Rico on the 24th. The disturbance moved northwestward, crossed the Florida coast south of Miami, and entered the Gulf south of Ft. Myers on the morning of the 30th. The disturbance continued its northwestward course and moved inland again a short distance west of Mobile, Ala.,* at about 11 p.m. on the 31st. Rapidly diminishing in intensity, the disturbance then recurved to the north and then northeast over western Tennessee on September 2.

Rainfall was heavy ahead and to the right of the disturbance as it passed through southern Florida on the night of August 29-30.

Maximum Total-Storm Amount

Miami, Fla.: 10.3 in.



*See page 84, Gulf of Mexico Section

STORM OF AUGUST 23-29, 1949

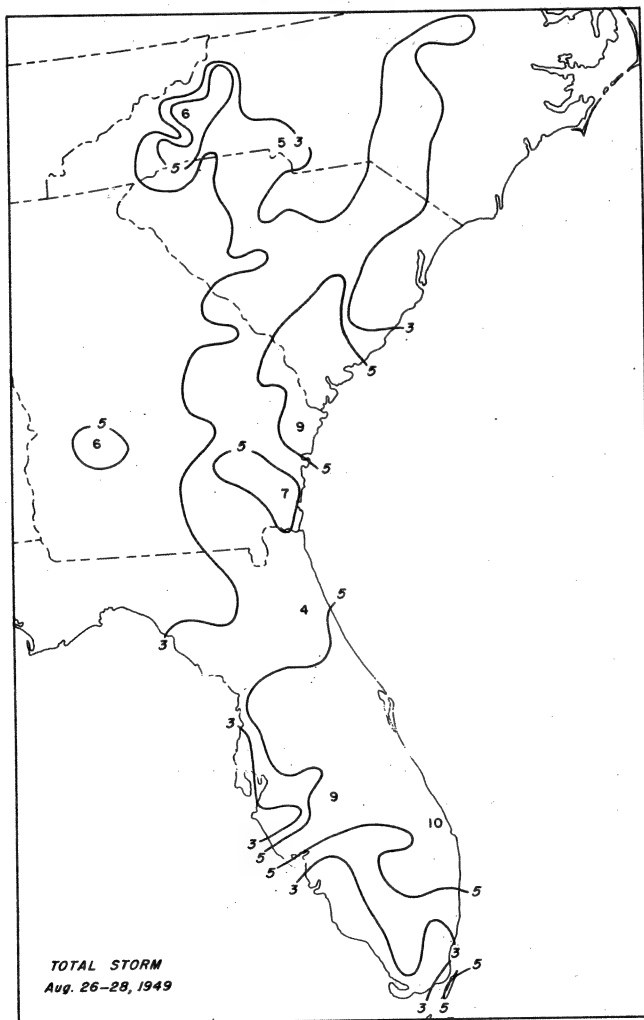
Meteorological Summary

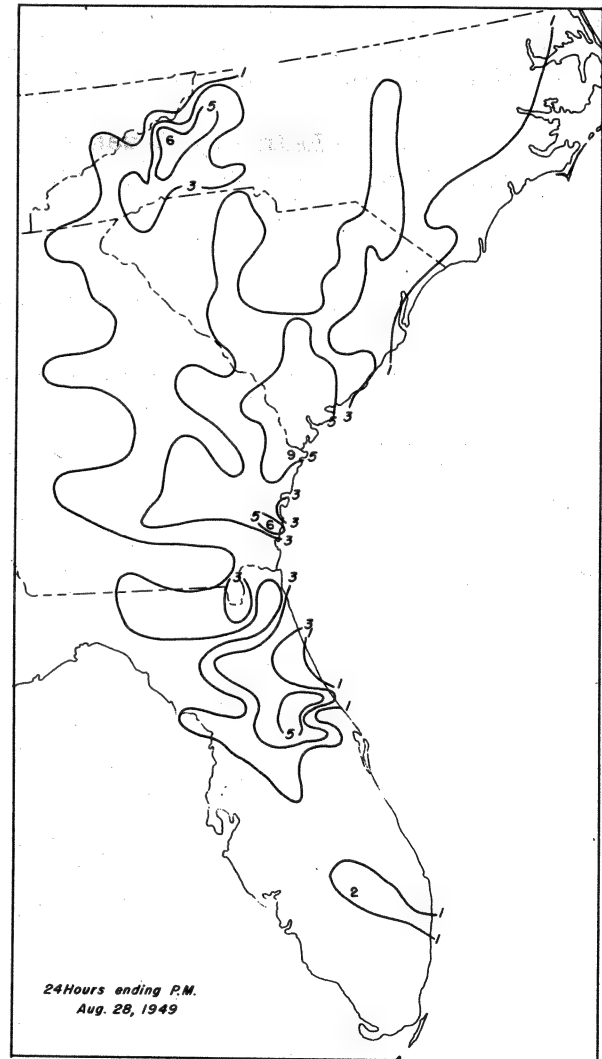
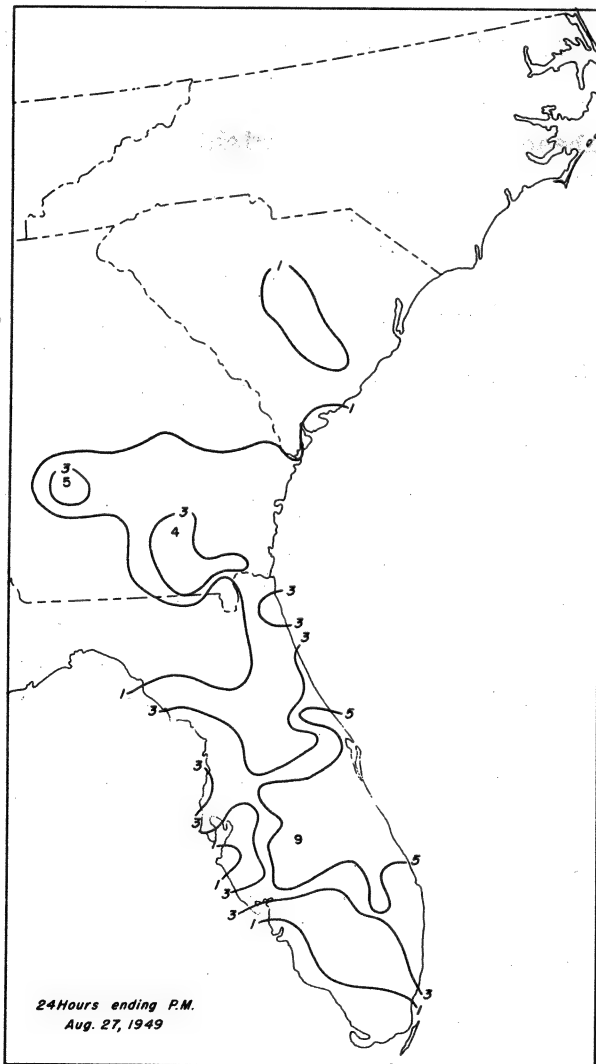
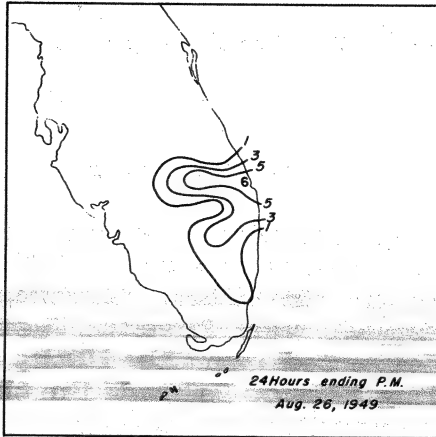
The severe hurricane that entered the Florida coast, passing over West Palm Beach at about 7 p.m. on August 26 was first observed northeast of the Leeward Islands on the 23rd. It moved west-northwestward, reaching the Bahamas on the 25th. After passing north of Nassau at about 5 a.m. on the 26th, the hurricane crossed the Florida coast over West Palm Beach on the 26th. Maintaining the same course, the hurricane center crossed northern Lake Okeechobee and, upon reaching the west coast, north of Tampa, turned north-northeastward and passed rapidly through the Middle and North Atlantic States as a weak disturbance.

Rainfall was moderate to heavy near the hurricane as it passed through Florida on August 26th and 27th. Moderate-to-heavy showers occurred as far north as the Carolinas near the hurricane as it passed northeastward. North of the Carolinas, the showers diminished, becoming light to occasionally moderate, as the greatly weakened disturbance passed through the North Atlantic States.

Maximum Total-Storm Amount

St. Lucie New Lock 1, Fla.: 9.6 in.





STORM OF SEPTEMBER 10-19, 1947

Meteorological Summary

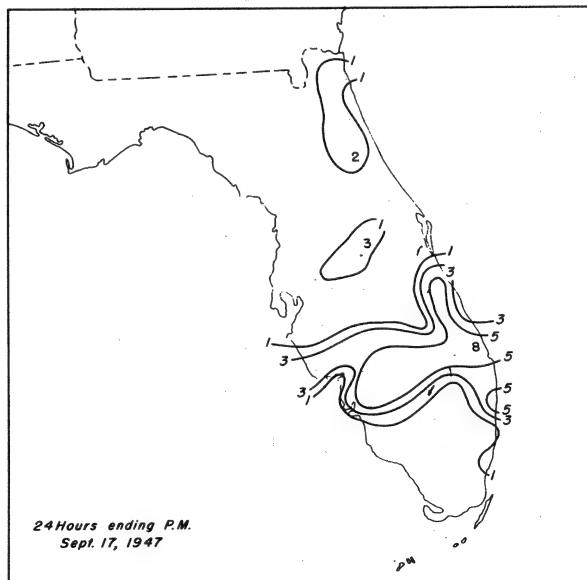
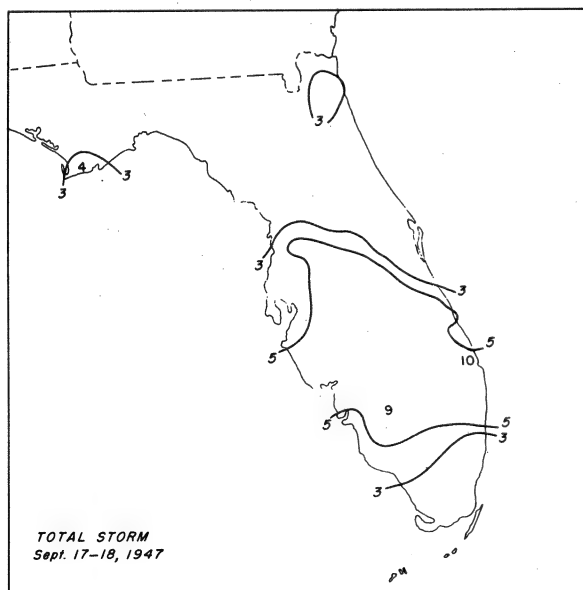
The major hurricane that entered the Florida east coast near Ft. Lauderdale during the afternoon of September 17 was first observed near 15° N and 49° W on the 10th, although there was evidence that the disturbance had developed over French West Africa on the 2nd. From the time the hurricane was detected on the 10th, until the 15th, it had moved west-northwestward reaching Abaco Island in the Bahamas. Here it came to a virtual standstill for about 24 hours and then moved south-southwestward. The hurricane crossed the Florida east coast about noon of the 17th and emerged into the Gulf of Naples at about 10 p.m. of the same day.

Further treatment of this hurricane after it passed into the Gulf can be found elsewhere in the publication*.

Rainfall was heavy ahead and to the right of the hurricane as it crossed the Florida Peninsula on September 17.

Maximum Total-Storm Amount

St. Lucie Lock No. 2, Fla.: 10.1 in.



*See page 85, Gulf of Mexico Section

STORM OF OCTOBER 18-21, 1906

Meteorological Summary

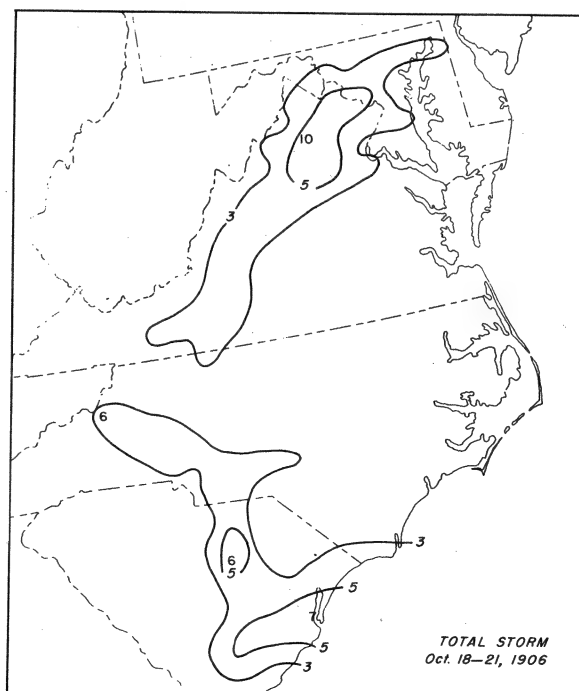
The tropical disturbance which caused the rain of October 18-21, has an isohyetal pattern that shows three distinct rainfall maxima.

After the disturbance crossed the Caribbean, it curved northeastward, passing over Cuba and then close to Key West, Fla., at 3 a.m. on October 18. From here it moved through extreme southeastern Florida and recurved to the north-northeast as it went out to sea. It advanced toward eastern North Carolina until October 20, when it was 200 miles south of Wilmington, N. C. By this time an extratropical High, preceded by a cold front, was passing through the Carolinas. The front became diffuse over the Carolinas and anti-cyclonic flow covered the Southeastern States. The blocked tropical disturbance curved abruptly with this flow and moved southwestward and dissipated in Florida on October 22.

The total-storm isohyetal map for October 18-21 indicates two independent maxima which are in addition to a first maximum of 5 inches that occurred in southeastern Florida in a 24-hour period on October 18 as the tropical disturbance passed that region. The second maximum occurred in a 24-hour period on October 19 in a convergence zone between the circulation of the tropical disturbance and the approaching cold front. The third maximum occurred in northern Virginia in a 24-hour period from the morning of October 19 to the morning of October 20 as the moist, tropical air was lifted over the cold frontal surface as it moved southward across the region.

Maximum Total-Storm Amount

Skyland, Va.: 10.0 in.



STORM OF JUNE 13-17, 1902

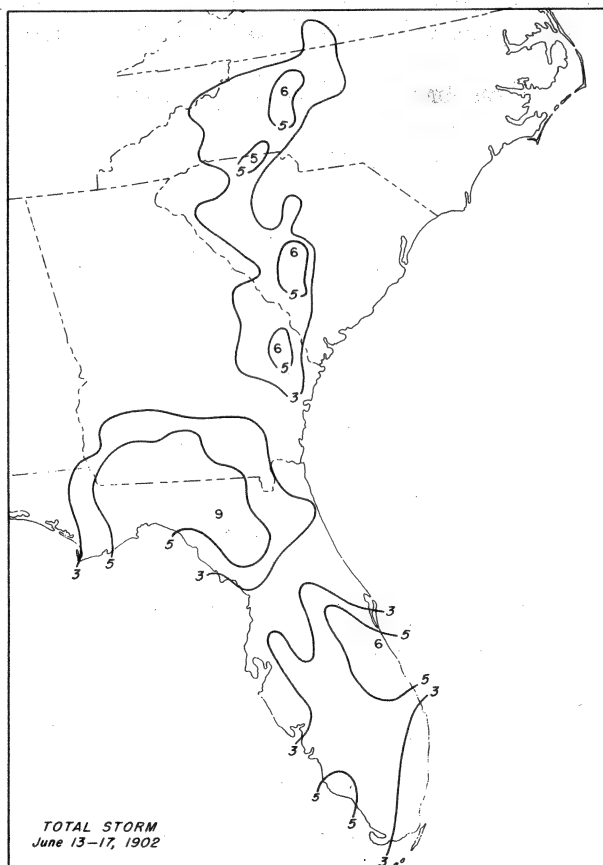
Meteorological Summary

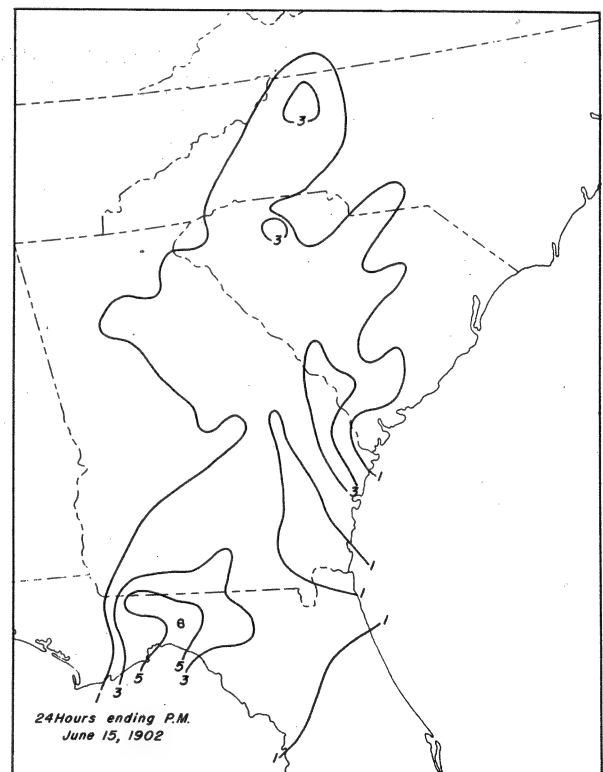
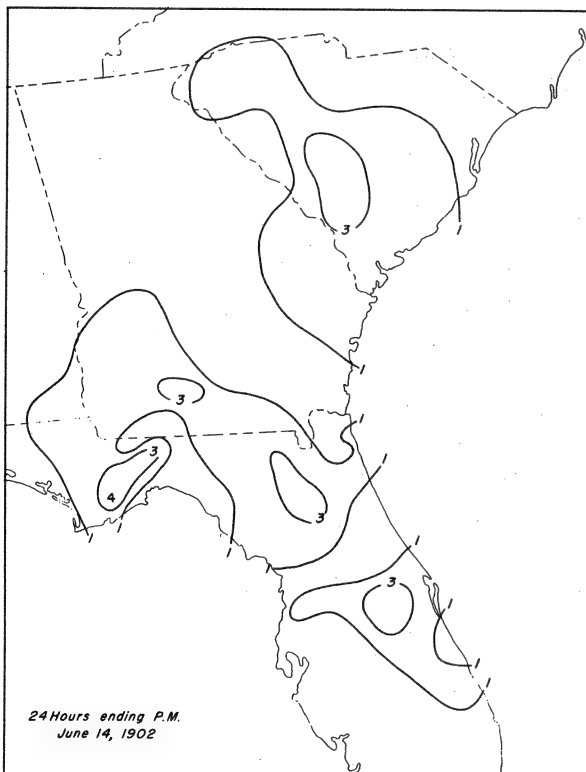
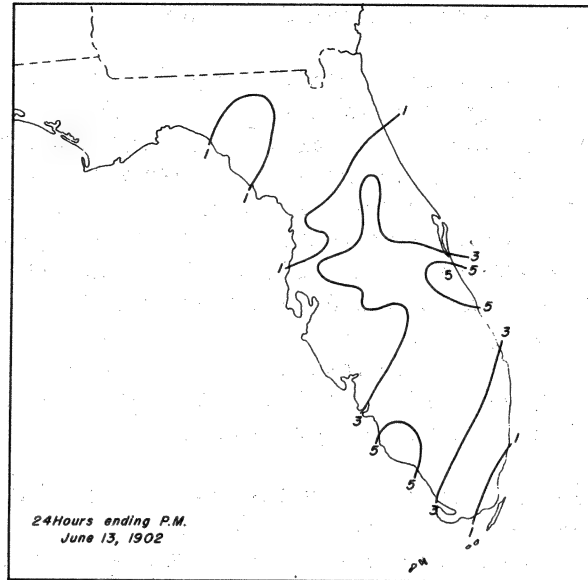
The tropical disturbance that entered the Florida coast near Tallahassee during the afternoon of June 14 was of Cape Verde origin. It moved on a westward course across the Caribbean and entered the Gulf through the Yucatan Channel on June 12. It then curved northeastward as the Bermuda High moved further eastward and entered the Florida coast on the 14th. Continuing its northeastward movement after moving inland, the disturbance merged with an eastward-moving cold front over the Carolinas on June 16 and moved northeastward along the frontal zone as a wave.

Rainfall was moderate to occasionally heavy along the path of the disturbance. One maximum occurred in southern Florida on June 13 when the disturbance was passing just west of the Florida Peninsula. The other principal maxima occurred near the disturbance as it moved inland near Tallahassee, Fla., and then along the Piedmont region from Georgia northward as the warm, moist, tropical air underwent orographic lifting.

Maximum Total-Storm Amount

Pinemount, Fla.: 9.0 in.





STORM OF AUGUST 18-19, 1933

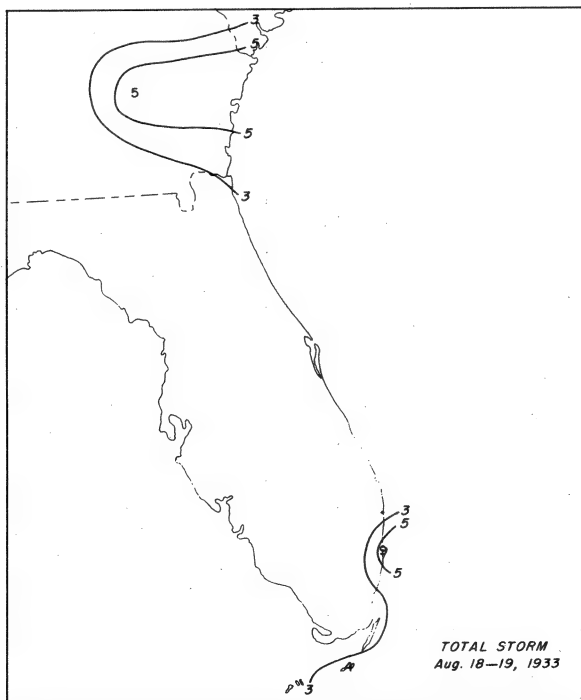
Meteorological Summary

The weak tropical disturbance that dissipated as it reached the Florida coast near Tallahassee during the night of August 19 was first observed over the Lesser Antilles on August 12. It moved west-northwestward and then curved to the north on August 18 after passing over western Cuba. Continuing northward, the disturbance dissipated as it reached the Florida coast. Although this storm did not reach hurricane intensity or pass near either of the two rainfall centers it has been included for two reasons:

1. The effect of a tropical disturbance shifting from an anticyclonic to a cyclonic path,
2. The added influence offered to this region in weakening the pressure gradient so that a sister disturbance was able to move undisturbed into the region on August 23.

The rainfall maxima occurred in southeastern Florida and southeastern Georgia. The Florida center occurred during the night of August 17 when the flow over that area underwent the change in curvature from anticyclonic to cyclonic. The center in southeastern Georgia occurred during the night of August 18 when the flow of tropical air in that area underwent the same change in curvature.

Maximum Total-Storm Amount
Ft. Lauderdale, Fla.: 9.1 in.



STORM OF OCTOBER 11-12, 1909

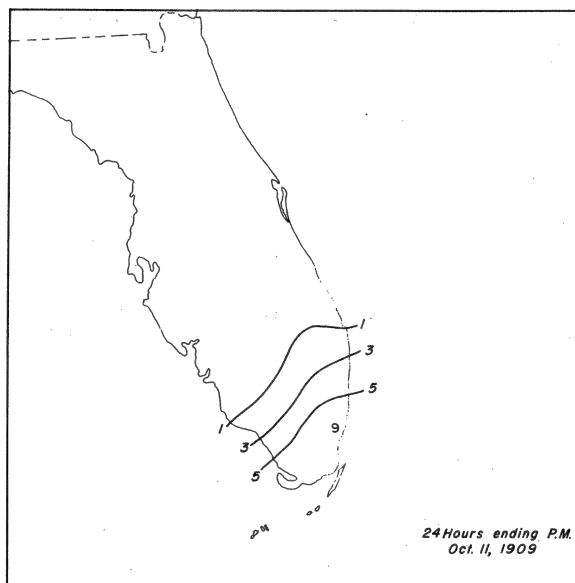
Meteorological Summary

The tropical disturbance that produced the rain of October 11-12 was first observed in the south-central Caribbean on October 9. It moved northward, crossing Cuba on October 10 then curving to the northeast. Following this trajectory, it passed almost directly over Key West, Fla., during the morning of October 11, then crossed the southeastern tip of Florida and moved out into the Atlantic by afternoon of October 11.

Rainfall was moderate to heavy immediately ahead and to the right of the disturbance as it moved across the southern tip of the Florida Peninsula.

Maximum Total-Storm Amount

Miami, Fla.: 9.00 in.



STORM OF SEPTEMBER 12-15, 1904

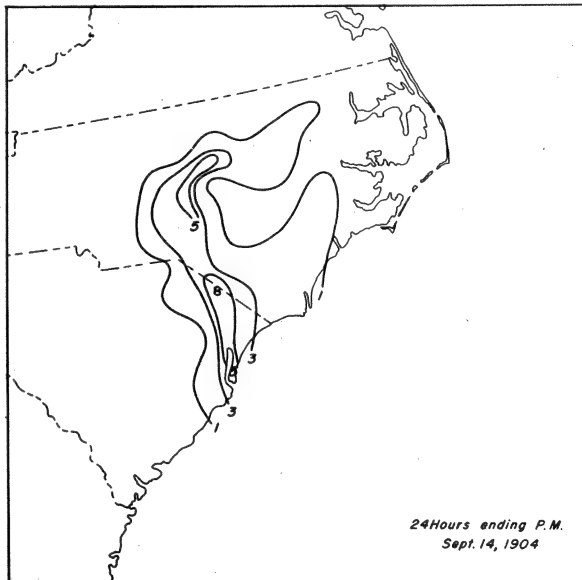
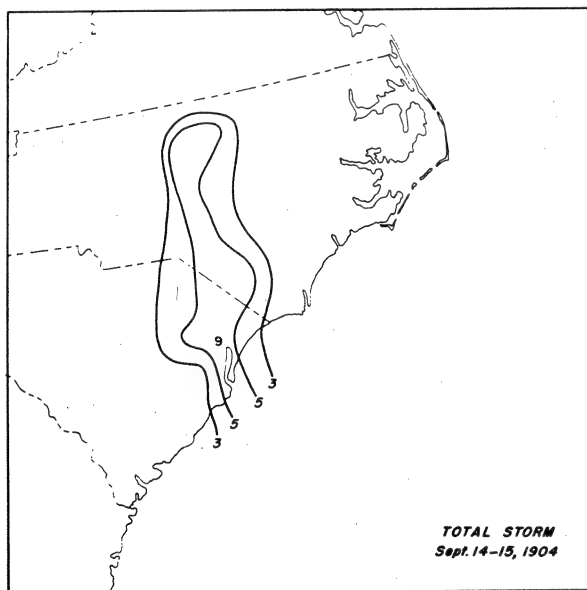
Meteorological Summary

The tropical disturbance that crossed the South Carolina* coast near Charleston at about noon on September 14 was noted off the east coast of Florida early on the morning of the 13th. The disturbance gained in intensity and continued in a northerly direction across the South Carolina coast on the 14th, thence northeastward as it moved into an eastward-moving frontal zone.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland over the Carolinas on the morning of September 14 but diminished along the path of the disturbance as it curved northeastward on the night of the 14th.

Maximum Total-Storm Amount

Smiths Mills, S. C.: 8.9 in.



*See page 280, North Atlantic Section

STORM OF SEPTEMBER 7-8, 1947

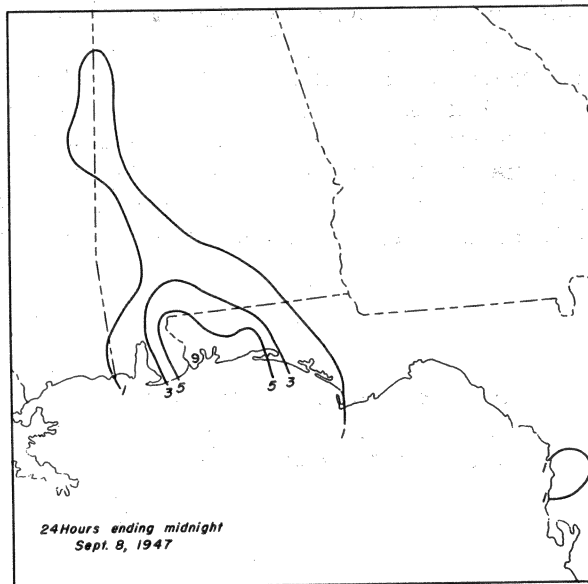
Meteorological Summary

The minor tropical disturbance that crossed the Gulf Coast between Mobile, Ala., and Biloxi, Miss., on the afternoon of September 8 was first observed on the 7th over the northeastern portion of the Gulf of Mexico. The disturbance moved northwestward, crossed the Alabama-Mississippi coast, gradually curving to the northeast, and finally dissipated over western Kentucky during the night of the 9-10th.

Rainfall was heavy along the fringe coast to the right of the disturbance as it moved inland, with the amounts diminishing rapidly as the disturbance moved further inland.

Maximum Total-Storm Amount

Pensacola Airport, Fla.: 8.8 in.



STORM OF SEPTEMBER 28-OCTOBER 1, 1920

Meteorological Summary

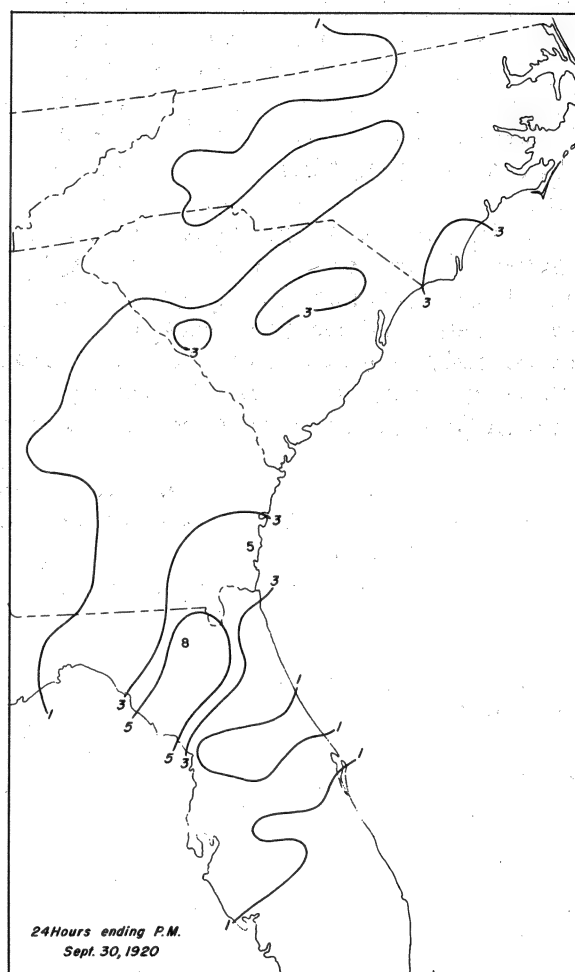
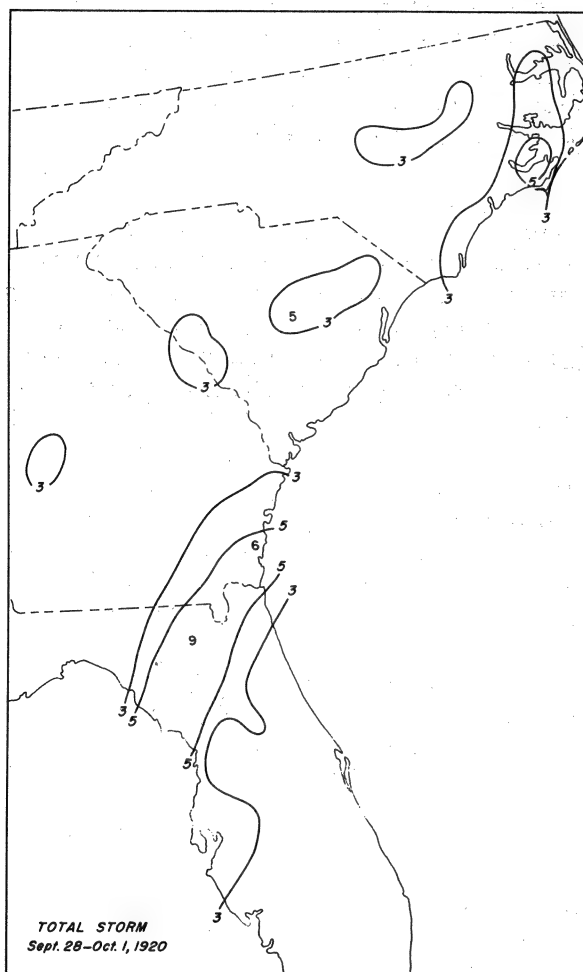
The disturbance that entered the Florida coast southeast of Tallahassee during the night of September 29 was first observed over the eastern Gulf of Mexico on September 25. Its northward motion was retarded by a large high-pressure system which was centered over the Middle Atlantic States until September 28 when the high center moved out into the Atlantic Ocean. The tropical disturbance then curved sharply northeastward and entered the western Florida coast during the night of September 29. After reaching the mainland, it moved due east and came under the influence of an eastward-moving cold front off the Florida coast on the morning of September 30. The disturbance took on extratropical characteristics as it moved rapidly along the frontal zone as a wave and re-entered the mainland near Wilmington, N. C., during the afternoon of September 30. Moving north-northeastward, it traversed New England reaching eastern Canada by morning of October 1.

Rainfall was heavy ahead and to the right of the disturbance as it crossed the Florida coast on the night of September 29-30. Rains of light-to-moderate intensity spread northward along the coast as far as the Carolinas. A secondary rainfall maximum occurred to the right of the disturbance as it moved into the North Carolina coast near Wilmington on the 30th. Rainfall diminished in intensity after the disturbance crossed eastern North Carolina and moved into the Atlantic, but increased again to moderate to heavy in the forward quadrants of the disturbance during the evening and night of September 30-October 1 as it approached and entered the Connecticut coast.*

Maximum Total-Storm Amount

Lake City, Fla.: 8.5 in.

*See page 286, North Atlantic Section



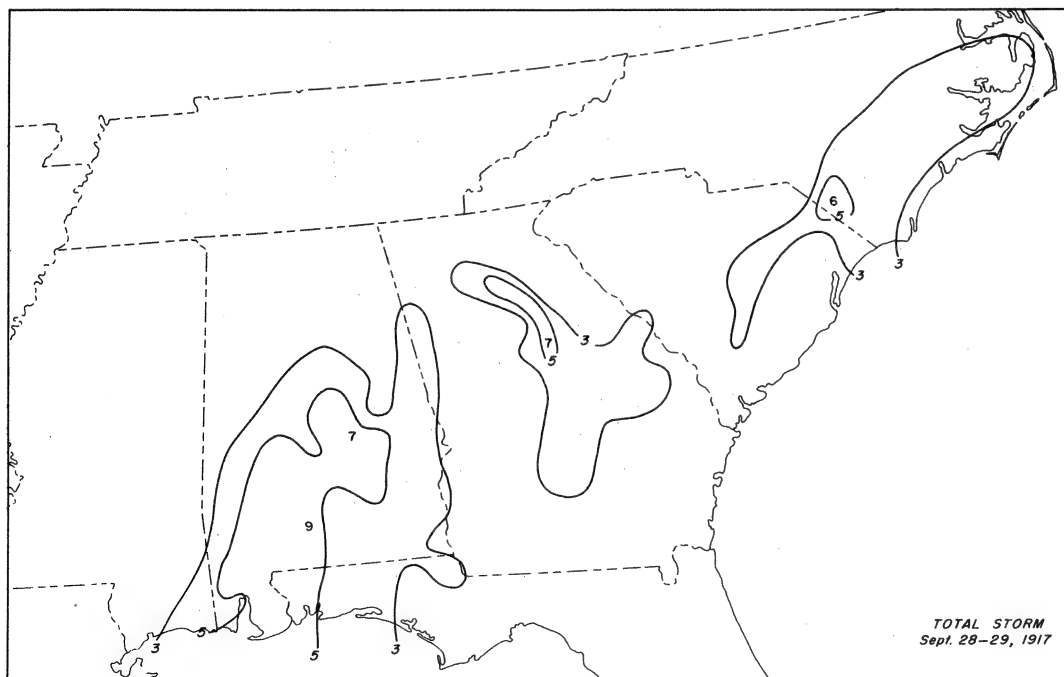
STORM OF SEPTEMBER 28-29, 1917

Meteorological Summary

The tropical disturbance that entered the Gulf Coast east of Pensacola, Fla., during evening of September 28 was located just west of the Barbados Island on September 21. It moved rapidly west-northwestward across the Caribbean, passed through the Yucatan Channel on September 25, and then curved northwestward until it was about 50 miles south of Port Eads, La. Here it began to recurve rapidly to the northeast and passed inland to the east of Pensacola, Fla. It dissipated over southern Georgia on the morning of the 29th. The abrupt change in direction of the tropical disturbance on September 28 may be attributed to the influence exerted by a weak extratropical low-pressure trough that was moving across the Middle Atlantic States at that time.

The rainfall pattern for the 24-hour period from early morning on September 28 to early morning on September 29 indicates the effect of the tropical disturbance and the extratropical trough. The maximum rainfall centers in Alabama and Georgia may be attributed to the tropical disturbance as it moved inland and dissipated. The maximum center over the Carolinas, however, probably resulted from the extratropical trough that passed through that region during the afternoon of September 28.

Maximum Total-Storm Amount
Evergreen, Ala.: 8.60 in.



STORM OF JUNE 12, 1906

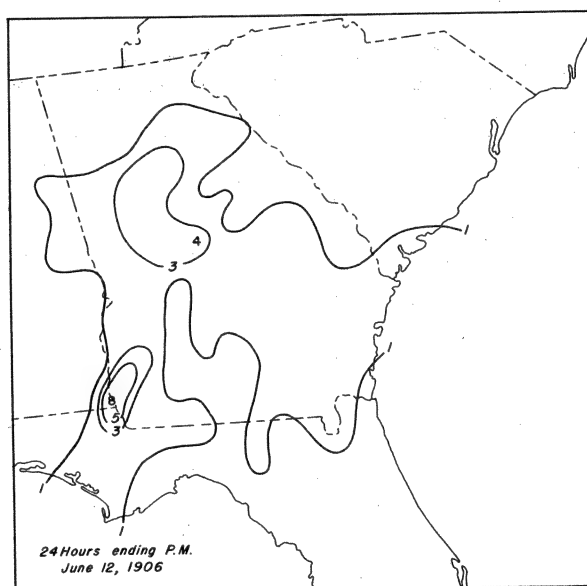
Meteorological Summary

The tropical disturbance which resulted in the rain of June 12 was first observed over the western Caribbean on June 9. It moved almost due north through the Yucatan Channel into the eastern Gulf of Mexico and passed inland near Pensacola, Fla., on the morning of June 12. After crossing the coast, the disturbance accelerated and moved north-northwestward, finally dissipating over southern Kentucky on June 13.

Light rainfall began along the Eastern Gulf Coast when the disturbance was 200 miles to the south and increased in intensity with moderate-to-heavy amounts occurring just ahead and to the right of the disturbance as it moved inland. Rainfall diminished rapidly as the tropical disturbance accelerated northward.

Maximum Total-Storm Amount

Lucy, Ala.: 8.3 in.



STORM OF SEPTEMBER 8-14, 1930

Meteorological Summary

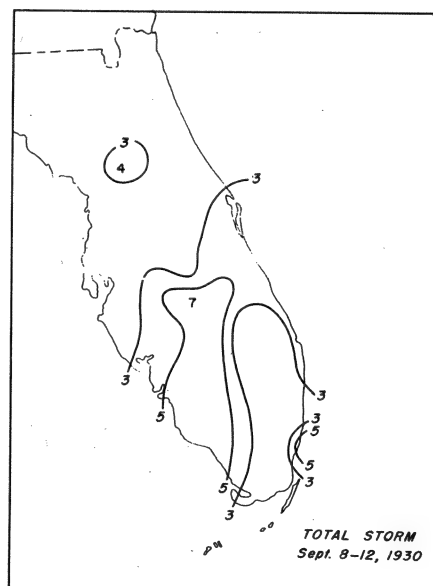
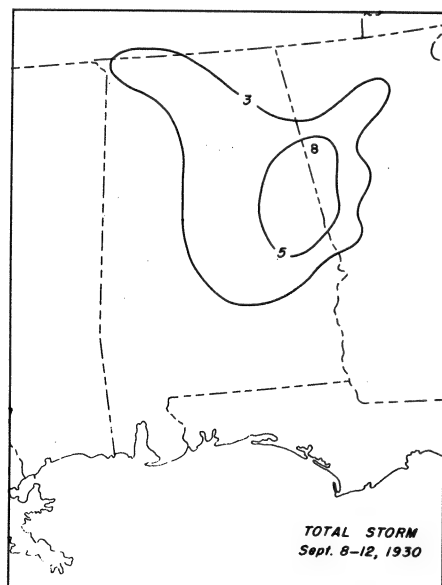
The tropical disturbance that crossed the Florida coast southeast of Tampa during the night of September 8-9 was first observed east of the Windward Islands on August 31. The disturbance moved west-northwestward, passed Dominica in the Leeward Islands on September 1, skirted the northern coast of Cuba, and recurved to the northeast over the eastern Gulf. Moving north-eastward, the disturbance crossed central Florida and, moving up along the East Coast, reached a point just off the North Carolina coast on September 12. The disturbance then shifted to a more easterly direction and moved out into the Atlantic.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it passed through Florida on September 8-9 as shown on the total-storm isohyetal map. General showers occurred over the central and eastern portions of Georgia, Alabama, and the Carolinas as the disturbance skirted the Coast from the 10th to the 12th. Thunderstorms were also reported during this period over central Alabama and Georgia, producing the highest maximum rainfall for the period from the 8th to the 12th. The 24-hour maximum amounts were as follows:

Saluda, S. C.:	3.5 in. on September 10
Tallapoosa, Ga.:	4.6 in. on September 11
Beaufort, N. C.:	4.4 in. on September 12

Maximum Total-Storm Amount

Tallapoosa, Ga.: 8.1 in.



STORM OF SEPTEMBER 17-18, 1906

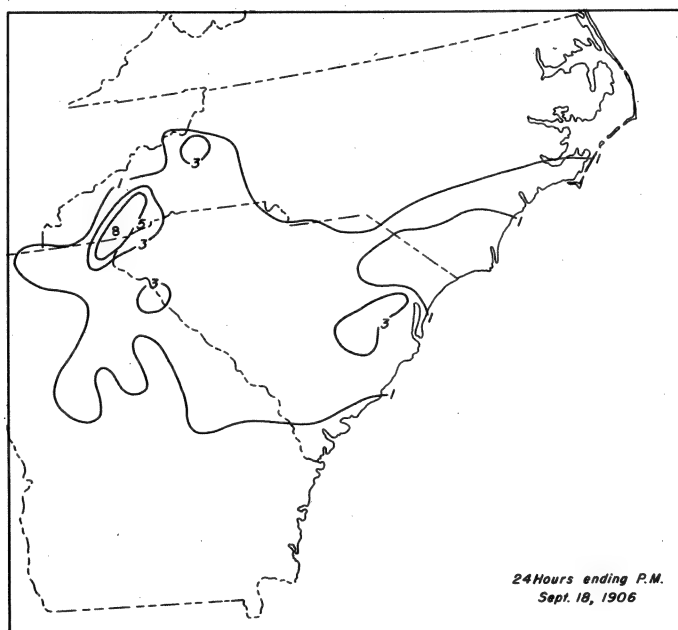
Meteorological Summary

The hurricane that entered the Carolina coast north of Charleston, S. C., on September 17 was first observed over the Atlantic at about 20° N and 50° W on the 10th. The disturbance moved northwestward, intensified on the 15th then curved more to the west and entered the Carolina coast on the 17th. The disturbance weakened rapidly as it moved across the Carolinas and lost its identity over the Appalachians on the 18th.

There were two rainfall maxima, one over eastern South Carolina as the hurricane moved inland on September 17, the other along the eastern Appalachians when the disturbance underwent cyclolysis early on the 18th.

Maximum Total-Storm Amount

Horse Cove, N. C.: 8.0 in.



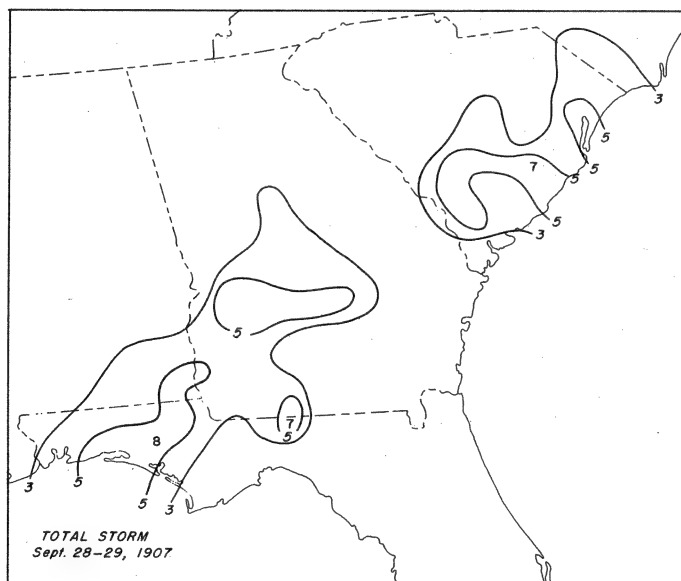
STORM OF SEPTEMBER 28-29, 1907

Meteorological Summary

The tropical disturbance that entered the Gulf Coast southeast of Mobile, Ala., on September 28 was first observed over the southwestern Gulf on September 23. The disturbance remained stationary and deepened until September 27, apparently blocked by a ridge from the Bermuda High. On September 27 the ridge from the Bermuda High was weakened by an approaching cold front and, as the ridge shifted eastward, the tropical disturbance moved rapidly northeastward skirting the extreme southeastern coast of Louisiana and entering the mainland southeast of Mobile, Ala., on the morning of September 28. The disturbance continued east-northeastward and consolidated with a cold front on the afternoon of September 28, then moved off the South Carolina coast by evening.

Rainfall occurred as light-to-moderate showers on September 27 and increased to moderate to heavy ahead and to the right of the disturbance by the afternoon of September 28 along the path of the disturbance. Rainfall diminished and then increased again to moderate to heavy over southeastern South Carolina as the disturbance consolidated with the cold front and then diminished rapidly over that area as the disturbance moved out to sea.

Maximum Total-Storm Amount
Wausau, Fla.: 8.0 in.



STORM OF JULY 5-10, 1946

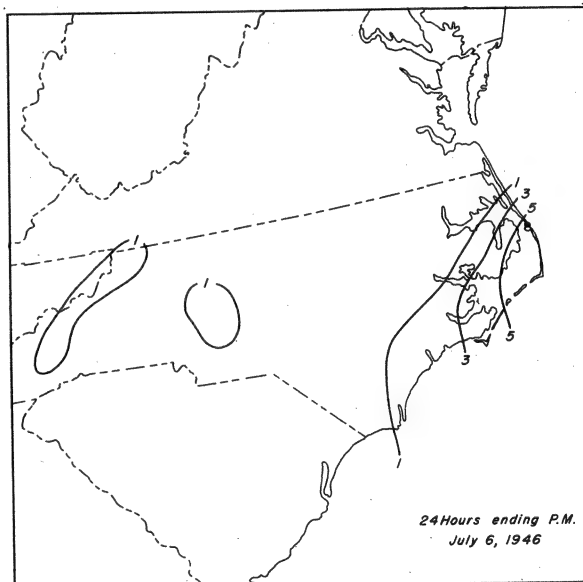
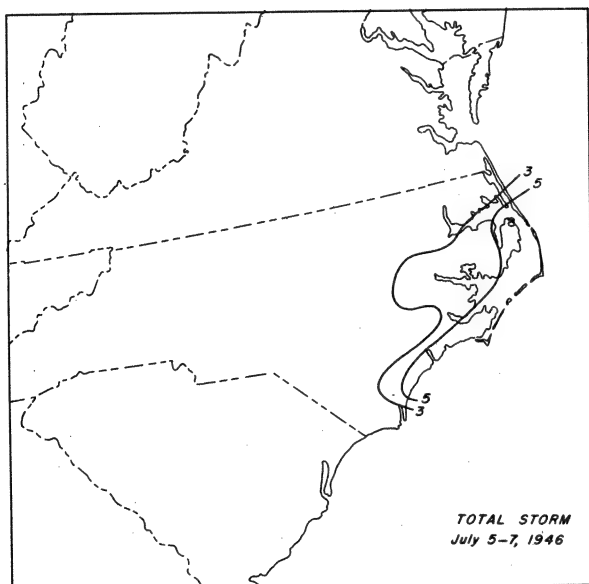
Meteorological Summary

The small tropical disturbance that moved inland near Wilmington, N. C., at about 6 a.m. on July 6 was first observed off the South Carolina coast on the 5th. The center moved north-northeastward along the coast of South Carolina during the 5th, entered the North Carolina coast on the following morning, then curved out to sea, passing close to Elizabeth City, N. C., and Norfolk, Va., by evening of the 6th.

Light-to-moderate showers occurred over the eastern Carolinas from July 2 until July 6. There was some increase in shower activity and intensity along the coast of eastern North Carolina on the 6th as the disturbance moved inland that day.

Maximum Total-Storm Amount

Manteo, N. C.: 8.0 in.



STORM OF OCTOBER 31-NOVEMBER 2, 1946

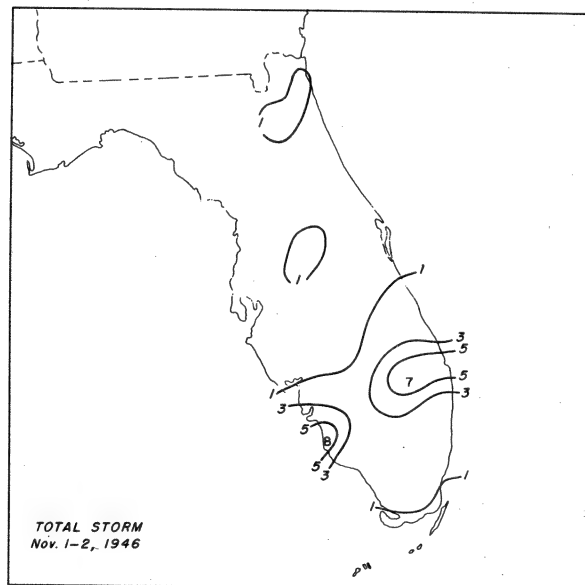
Meteorological Summary

The minor tropical disturbance that entered the Florida coast near Palm Beach at about 5 p.m. on November 1 was first observed north of Puerto Rico on October 31. Moving west-northwestward, the disturbance crossed the Bahamas early on the 1st and then entered the Florida coast the same afternoon. After reaching the coast the disturbance weakened rapidly as it curved to the north-northwest. It reached Orlando about 8 a.m. of the 2nd, then curved to the northwest and drifted into the Atlantic near Jacksonville on the same day.

Rain was moderate ahead and to the right of the disturbance as it moved inland, the amounts and intensities of rain diminishing rapidly as the center moved northward over the Florida Peninsula and weakened.

Maximum Total Storm Amount

Naples, Fla.: 7.9 in.



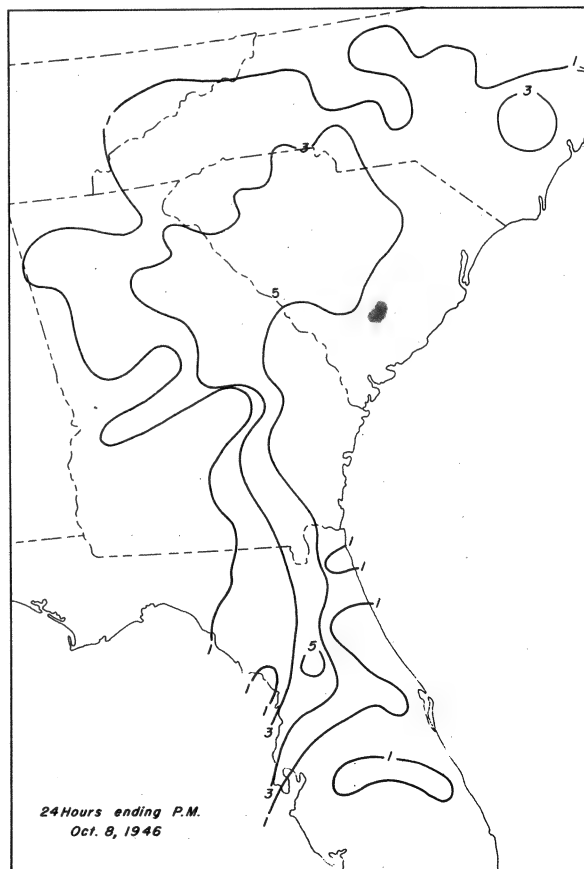
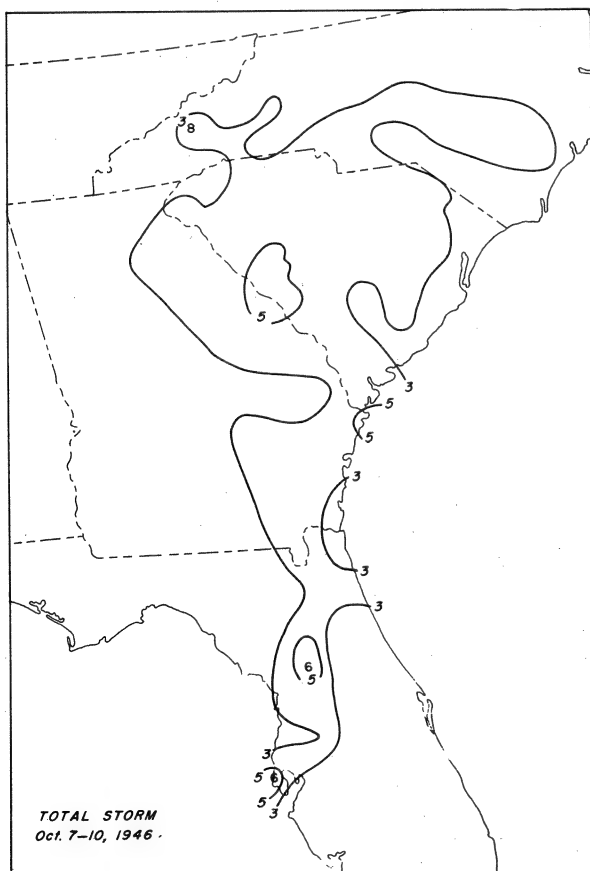
STORM OF OCTOBER 6-10, 1946

Meteorological Summary

The hurricane that passed just west of Cedar Keys, Fla., during the night of October 7-8 was first observed as it passed northeastward from Guatemala into the Caribbean on October 5. The disturbance stalled and deepened, crossed western Cuba into the Gulf on the night of October 6-7, and entered western Florida on the night of October 7-8. Continuing northward, the hurricane reached western North Carolina on the morning of the 9th, then weakened, it curved eastward and passed into the Atlantic during the night of October 9-10.

Rainfall was moderate to occasionally heavy in the forward quadrants of the hurricane as it moved into Florida on October 8. Rainfall amounts diminished as the disturbance moved northward, although an area of moderate-to-heavy showers occurred in the western Carolinas on the 9th as a result of orographic lifting of the moist, tropical air.

Maximum Total Storm Amount
Mt. Mitchell, N. C.: 7.8 in.



STORM OF JULY 30-AUGUST 4, 1944

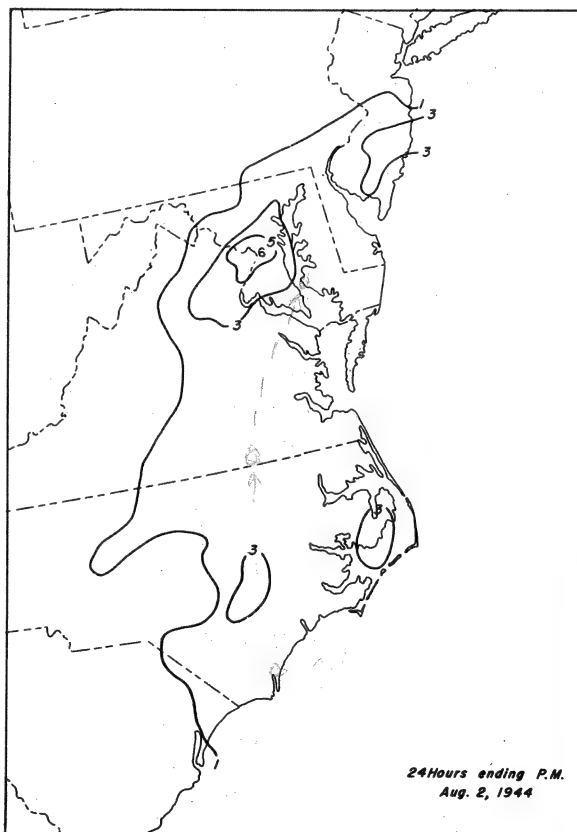
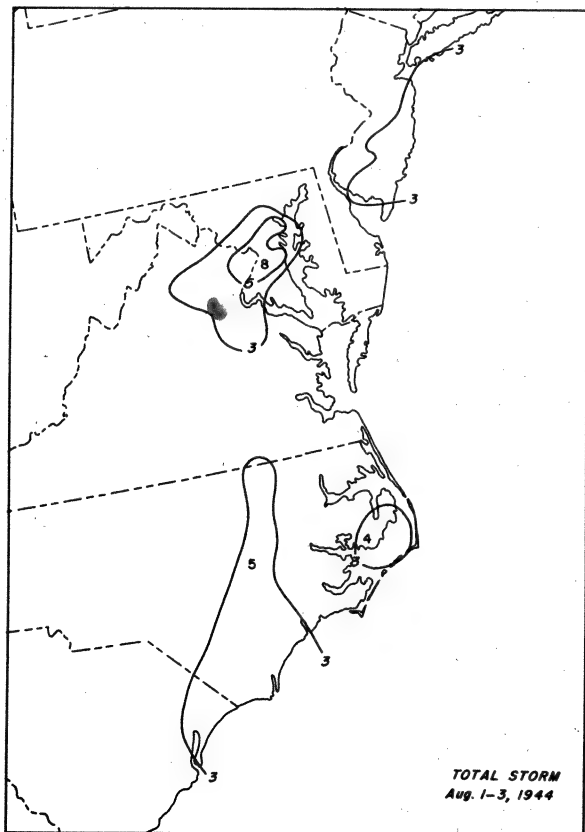
Meteorological Summary

The hurricane that entered the North Carolina coast near Southport at about 7 p.m. on August 1 formed east of the Bahamas during the night of July 30-31. The disturbance moved north-northwestward, slowly increasing in intensity, and crossed the North Carolina coast on August 1. Continuing northward, the hurricane began to curve to the northeast, passed near Washington, D. C., at about noon of the 2nd, and moved out to sea near Atlantic City, N. J., during the same afternoon.

Rainfall was light to moderate as the hurricane crossed the North Carolina coast during the night of August 1-2, with a reported maximum 24-hour amount of 4.6 inches at Sloan. The heaviest rainfall during the period of August 1-3 occurred over northern Virginia, Maryland, and the District of Columbia on the 2nd, when the disturbance passed through that area.

Maximum Total-Storm Amount

Cheltenham, Md.: 7.7 in.



STORM OF OCTOBER 22-23, 1908

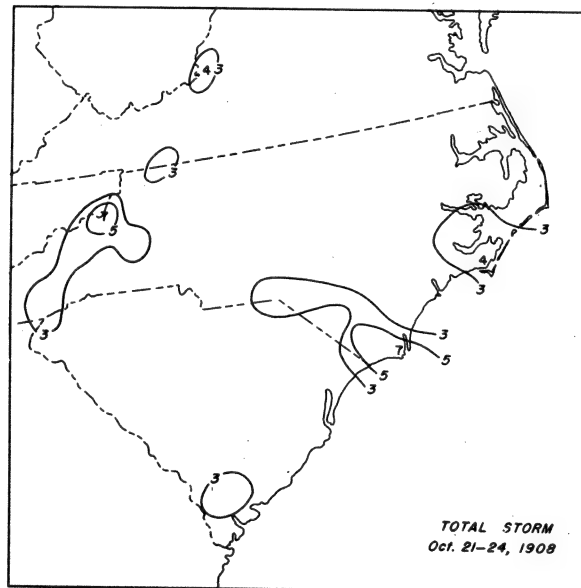
Meteorological Summary

The weak tropical disturbance that entered the Carolina coast and dissipated during the night of October 22-23 was first noted at 28° N and 50° W. The disturbance moved westward, then curved to the west-northwest on the 21st and entered the Carolina coast during the night of the 22nd-23rd.

Rainfall was moderate to occasionally heavy on October 22 and October 23 over the Carolinas in the warm, moist, tropical air brought in by the weak tropical disturbance.

Maximum Total-Storm Amount

Banner Elk, N. C.: 7.4 in.



STORM OF OCTOBER 7-12, 1913

Meteorological Summary

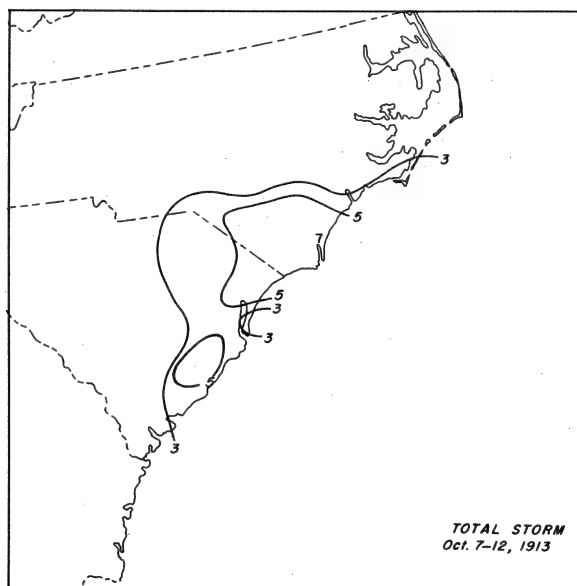
The disturbance that produced the moderate-to-heavy rains over the eastern Carolinas during the period of October 7-11 entered the South Carolina coast near Charleston on the 8th. After moving inland, the disturbance stagnated and slowly curved to the northeast, passing slowly through the eastern Carolinas. The disturbance finally passed out to sea near Norfolk, Va., during the night of the 11th-12th.

Moderate-to-heavy rains fell over the eastern portion of the Carolinas during the entire period of the storm. Since the maximum 24-hour rainfall was less than 5 inches for this period, only the total-storm isohyetal map is presented here. The maximum 24-hour amounts occurred as follows:

Southport, N. C.:	4.4 in. on October 8
Kingtree, S. C.:	3.6 in. on October 9
Lumberton, N. C.:	4.6 in. on October 10

Maximum Total-Storm Amount

Wilmington, N. C.: 7.3 in.



STORM OF JULY 12-18, 1912

Meteorological Summary

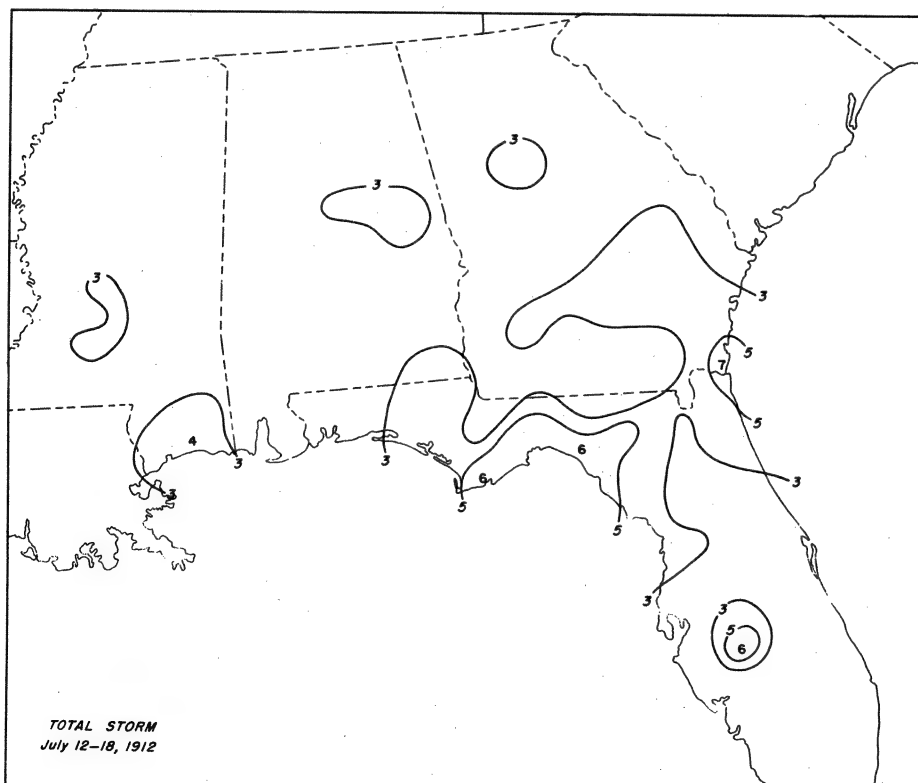
The tropical disturbance that entered the mainland near the Florida-Georgia coast on the morning of July 15 was observed east of the Bahamas on the 12th. The disturbance moved northwestward, then westward, and crossed the Florida-Georgia coast on the 15th. Continuing slowly westward, the disturbance dissipated over northern Mississippi during the 17th and 18th.

Rainfall was heavy along the coastal region of Georgia on July 14 and July 15 but diminished as the rains spread westward when the disturbance moved inland and dissipated. The following maximum 24-hour amounts were reported for the period from the 14th to the 18th:

St. Marys, Ga.:	7.0 in. on July 15
Fenholloway, Fla.:	5.2 in. on July 16
Apalachicola, Fla.:	5.2 in. on July 17
Biloxi, Miss.:	3.7 in. on July 18

Maximum Total-Storm Amount

St. Marys, Ga.: 7.0 in.



STORM OF OCTOBER 6-8, 1947

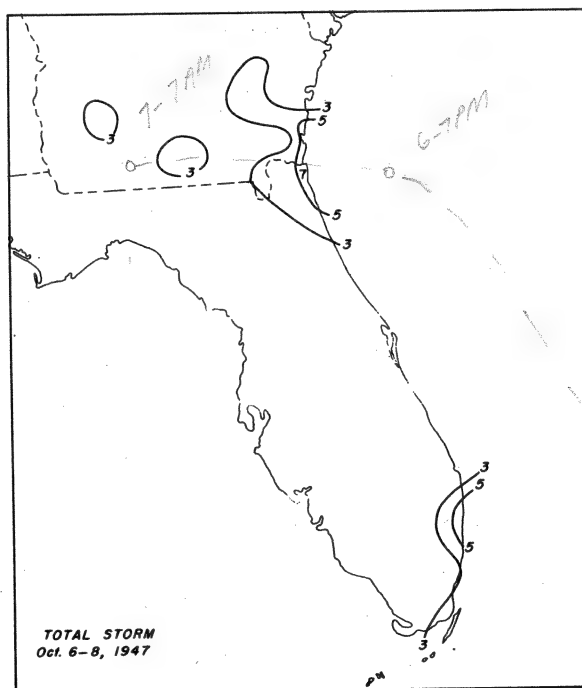
Meteorological Summary

The partly-developed easterly wave that moved inland near Brunswick, Ga., during the night of October 6-7 was first observed over the Bahama Islands and Florida Straits on the 6th. The disturbance moved northward and then northwestward, moving inland on the Georgia coast. It then curved westward and dissipated over western Florida on the 7th.

Rainfall of moderate-to-heavy intensity occurred over a small area along the Georgia-Florida coast in the vicinity of the disturbance as it crossed the coast during the night of October 6-7, and some light-to-moderate showers occurred in the vicinity of the disturbance as it moved westward and dissipated on the 7th. Another area of moderate-to-heavy showers occurred over extreme southeastern Florida as the disturbance was developing in the Florida Straits on the 6th.

Maximum Total-Storm Amount

Fernandina, Fla.: 6.9 in.



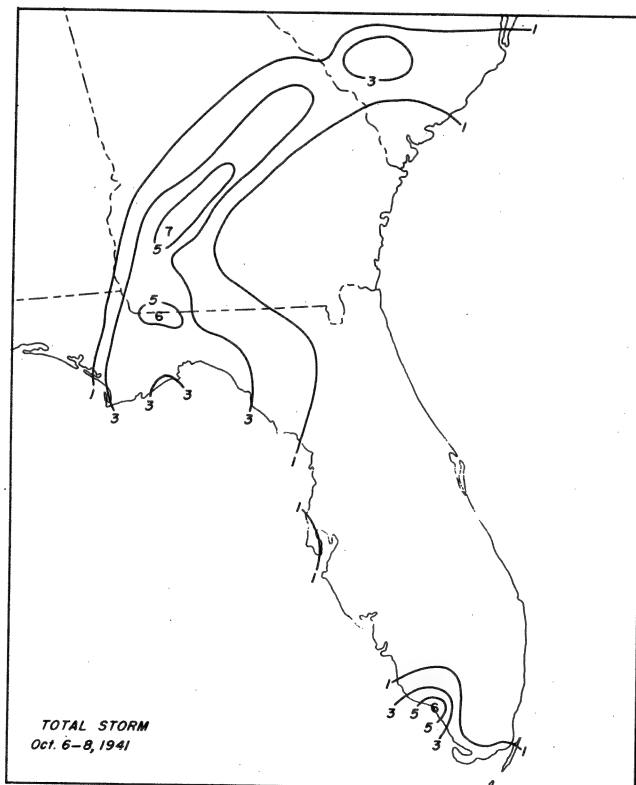
STORM OF OCTOBER 6-8, 1941

Meteorological Summary

The hurricane that passed inland just south of Miami, Fla., near 5:30 a.m. on October 6 was first observed about 300 miles north of the Virgin Islands on the 3rd. Moving west-northwestward, the storm crossed the Bahamas on the evening of the 5th and entered the southern Florida Peninsula early on the 6th. The hurricane continued west-northwestward passing into the Gulf between Everglades City and Ft. Myers about 11 a.m. on the 6th. It then curved to the north and re-entered the western Florida coast near Carrabelle at about 4 a.m. on the 7th. After recurving to the northeast and diminishing in intensity, the disturbance moved out to sea near Charleston, S. C., at about 1 a.m. on the 8th.

Rainfall was light during the period of this storm, with the heaviest amounts occurring to the left of the hurricane center as it passed through central Georgia on the 8th. Further treatment of the unusual rainfall of this storm may be found in the Bulletin of the American Meteorological Society, Vol. 27, No. 1, January 1946, pp. 9-14.

Maximum Total-Storm Amount
Albany, Ga.: 6.8 in.



STORM OF AUGUST 16-27, 1924

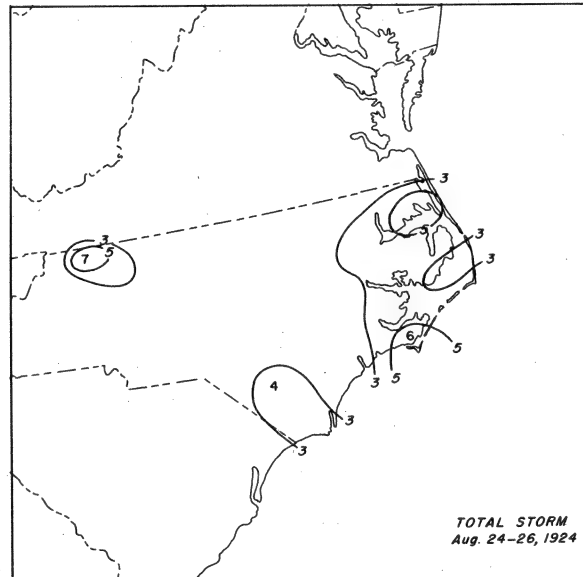
Meteorological Summary

The hurricane that passed close to Cape Hatteras, N. C., on August 25 was first observed between Dominica and St. Lucia in the West Indies on the 17th. The disturbance moved northwestward at a fairly rapid rate until the 22nd, when it slowed down off the Atlantic Coast and began to curve to the northeast. It passed just east of Hatteras, N. C., on the 25th and Nantucket, Mass.,* on the 26th.

Rainfall was moderate to occasionally heavy along the North Carolina coast from late on August 24 to early on August 26, at which time the hurricane was passing to the east of the coast. Since no 24-hour rainfall amount exceeded 5 inches only the total-storm map has been included for this storm.

Maximum Total-Storm Amount

Brewers, N. C.: 6.5 in.



*See page 285, North Atlantic Section

STORM OF AUGUST 21-25, 1916

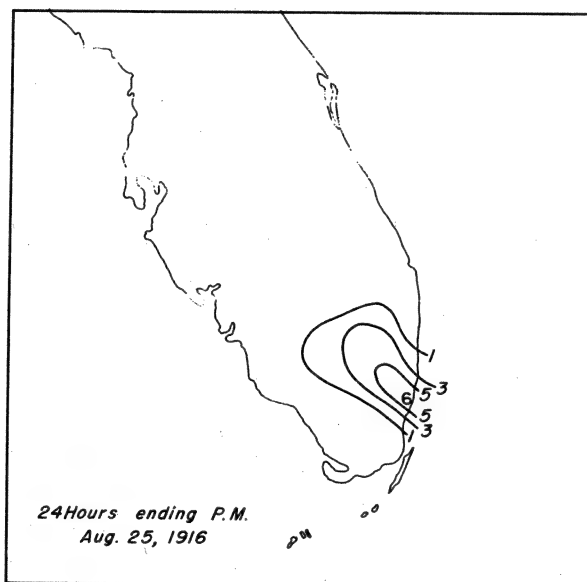
Meteorological Summary

The tropical disturbance that produced the rain of this storm was first observed in the southwestern Atlantic on August 21. Moving northwestward, it passed over Haiti on August 23 then curved to the north as it skirted the southeastern tip of Florida on August 25. The disturbance lost its identity after curving off the Florida coast during the night of August 25.

Only one small area of heavy rain was observed to occur when the disturbance was closest to the southeastern tip of Florida.

Maximum Total-Storm Amount

Miami (nr.), Fla.: 6.1 in.



STORM OF AUGUST 25-SEPTEMBER 2, 1952 (Able)*

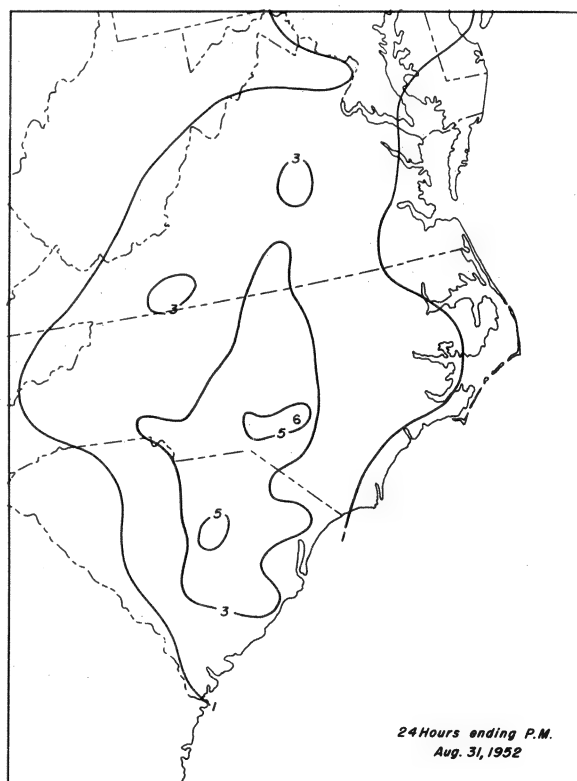
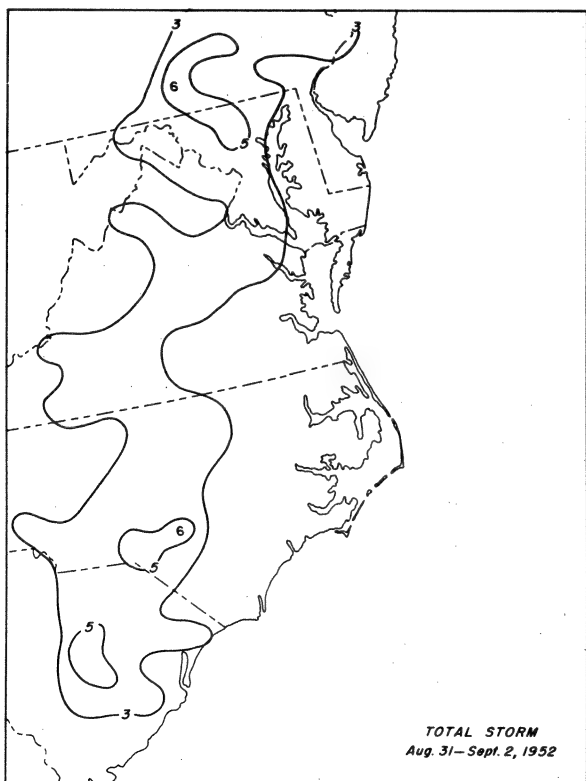
Meteorological Summary

The hurricane that entered the South Carolina coast near Beaufort, S. C., at about 11 p.m. on August 30 was first noted on the 25th as a slowly developing easterly wave about 600 miles east of Puerto Rico. The disturbance moved northwestward until the 30th, when the circulation of the storm became established. The disturbance then turned sharply from its northwesterly course and moved northward parallel to the Georgia coast, reaching the South Carolina coast during the night of the 30th. After crossing the coast, the hurricane moved north-northeastward, reaching the southwestern part of the District of Columbia at 3 a.m. of September 1. By the morning of the 2nd, the disturbance was centered northwest of Portland, Me., and dissipated shortly thereafter.

Rainfall was moderate to heavy along the path of the disturbance, spreading from the Carolinas on August 31 to southeastern New York on September 1. Rainfall amounts diminished rapidly after the disturbance passed through the New England States.

Maximum Total-Storm Amount

Fayetteville, N. C.: 6.1 in.



*See page 290, North Atlantic Section

STORM OF OCTOBER 1-4, 1927

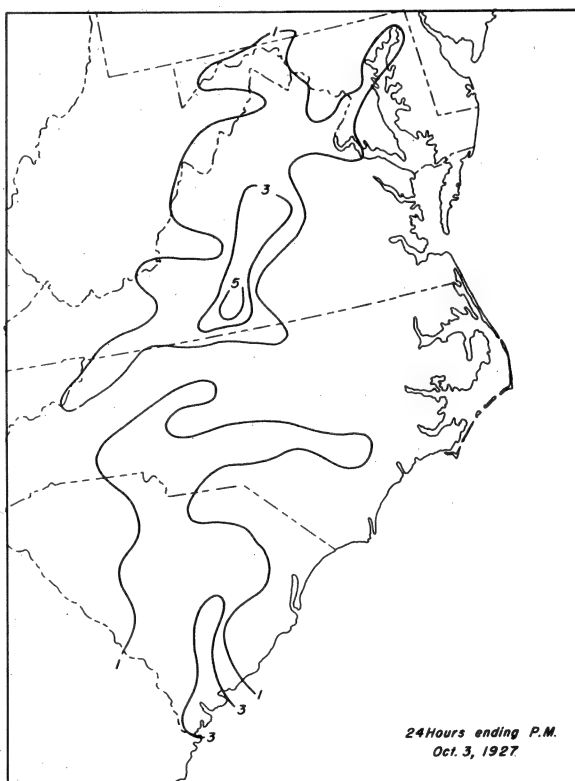
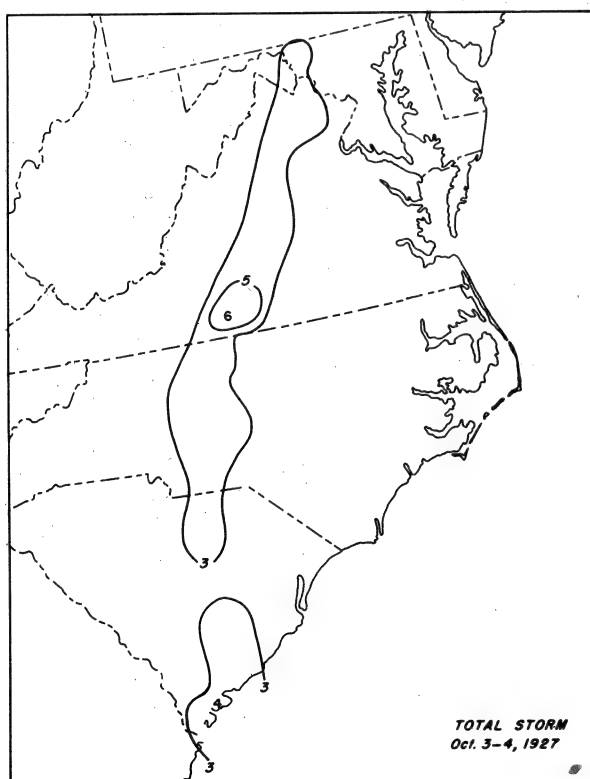
Meteorological Summary

The tropical disturbance that entered the coast between Savannah, Ga., and Charleston, S. C., on October 3 developed off the coast of the Bahamas on the 1st. The disturbance moved northwestward and entered the Georgia-South Carolina coast on the 3rd. After crossing the coast, the disturbance began curving northeastward, passing to the east of the Appalachians and reaching the Cape Cod area by morning of the 4th.

Rainfall was moderate to heavy along the path of the disturbance along the Piedmont and eastern slopes of the Appalachians in the Carolinas and Virginia on October 3 and October 4. Rainfall amounts diminished as the storm moved through Pennsylvania into the North Atlantic States.*

Maximum Total-Storm Amount

Chatham, Va.: 6.0 in.



*See page 294, North Atlantic Section

STORM OF JUNE 16-17, 1906

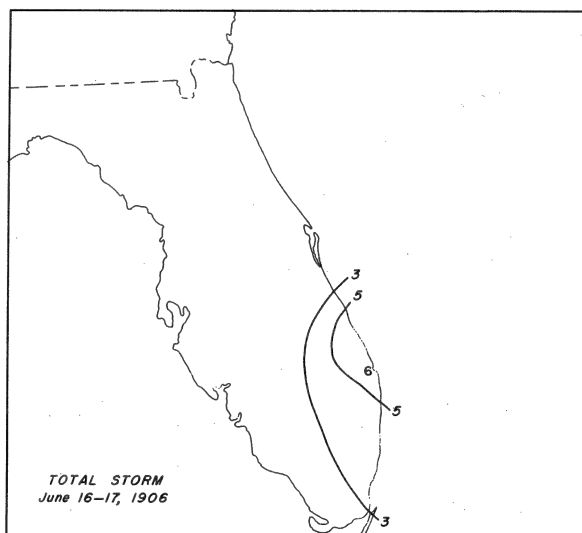
Meteorological Summary

The disturbance that caused the rain of June 16-17 was first observed over the western Caribbean on June 15. It moved north-northeastward over Cuba on June 16 and crossed the southeastern tip of the Florida Peninsula during the morning of June 17. It then continued northeastward, skirting the southeastern coast, and curved eastward into the Atlantic just north of Cape Hatteras on June 18.

Rainfall of moderate-to-heavy intensity was confined to a small area over southeastern Florida ahead and to the right of the disturbance as it moved through the area.

Maximum Total-Storm Amount

Jupiter, Fla.: 5.9 in.



STORM OF SEPTEMBER 3-6, 1945

Meteorological Summary

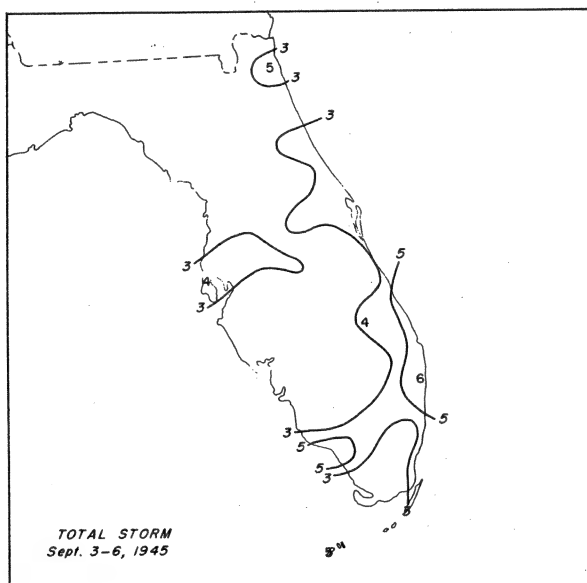
The minor disturbance that contributed to the rainfall during this period had moved northward out of the Caribbean Sea on September 3. It crossed western Cuba and entered the Florida Peninsula near Ft. Myers, then dissipated on the 4th.

Due to the added moisture supplied by the tropical disturbance, rainfall was (as the total-storm isohyetal map indicates) generally moderate in Florida during the 4-day period; however, 24-hour amounts were not excessive. The following were the maximum 24-hour amounts:

Traverner	5.0 in. on September 3
Jacksonville	4.1 in. on September 4
Key West	3.6 in. on September 5
Okeechobee	3.7 in. on September 6

Maximum Total-Storm Amount

Hypoluxo, Fla.: 5.8 in.



STORM OF SEPTEMBER 18-19, 1936*

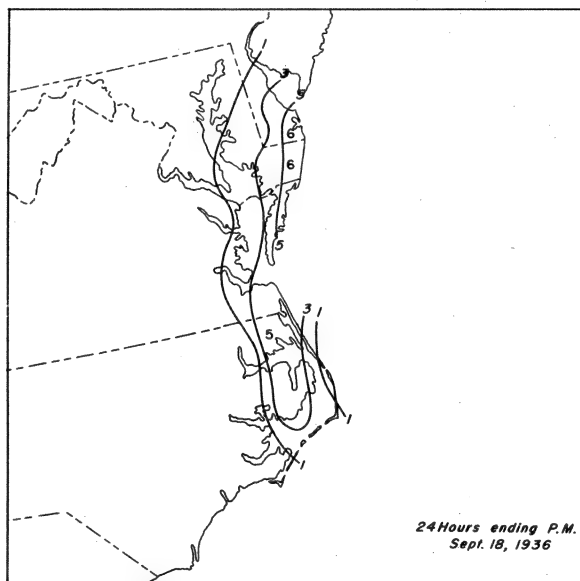
Meteorological Summary

The hurricane that skirted Cape Hatteras, N. C., on September 18 was first observed near 13° N and 50° W on the 8th. The disturbance moved slowly northwestward, gaining in intensity, on a direct course toward North Carolina. The hurricane recurved near Hatteras early on the 18th and skirted the North Atlantic Coast on the 19th.

Rainfall was moderate to heavy along the eastern seaboard north of North Carolina, occurring as the hurricane skirted the coast from the 18th to the 19th.

Maximum Total-Storm Amount

Millsboro, Del.: 5.9 in.



*See page 284, North Atlantic Section

STORM OF SEPTEMBER 5-7, 1900

Meteorological Summary

The hurricane that skirted the Florida west coast during the period of September 5-7, with its center passing just south of Tampa on the 6th, curved west-northwestward and entered the Galveston Bay* area on the 8th.

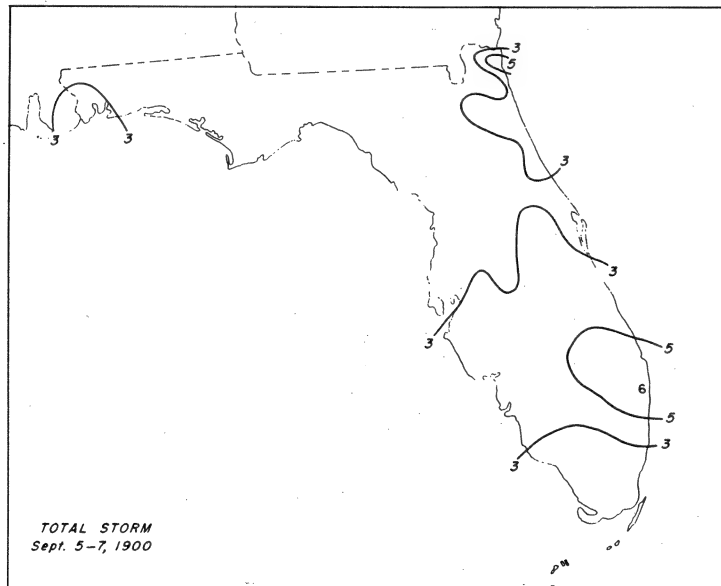
Rainfall was moderate to heavy, occurring over southern Florida and spreading to the northwestern coast during the period of September 5-7 as the hurricane was skirting the Florida coast.

Maximum 24-hour amounts were as follows:

Hypoluxo, Fla.:	3.1 in. on September 5
Manatee, Fla.:	3.5 in. on September 6
Middleburg, Fla.:	3.5 in. on September 7

Maximum Total-Storm Amount

Hypoluxo, Fla.: 5.7 in.



*See page 72, Gulf of Mexico Section

STORM OF OCTOBER 8-10, 1908

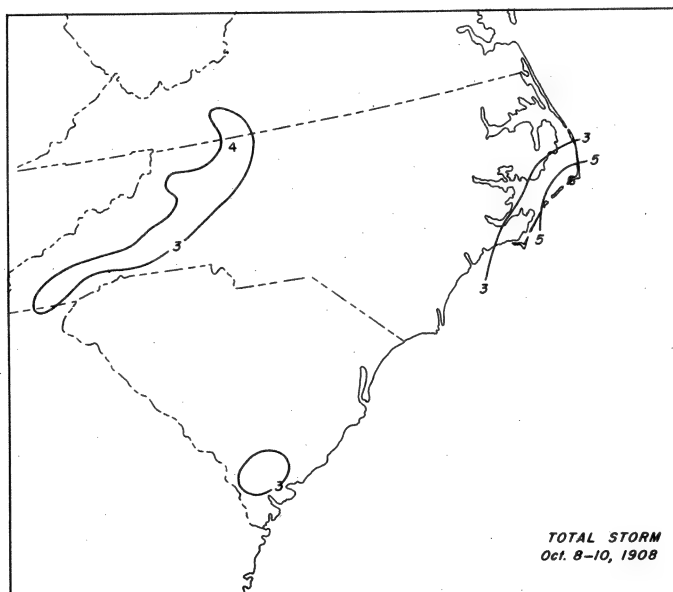
Meteorological Summary

The weak tropical disturbance that entered the Carolina coast during the night of October 8-9 was first observed over the Florida Straits on the 6th. The disturbance moved to the east on the 7th, then recurved to the west-northwest and moved very slowly until the 8th, when it accelerated westward. After crossing the North Carolina coast, the disturbance merged with an eastward-moving cold front over western South Carolina by morning of the 9th.

Rainfall in connection with the tropical disturbance was light to moderate, occurring ahead of the disturbance, with one maximum recorded along the Carolina coast when the disturbance moved inland during the night of October 8-9 and another over the eastern Appalachians near the decaying disturbance on the 9th. Since the period of the storm was relatively short, the total-storm isohyetal map has been used to show the rainfall pattern.

Maximum Total-Storm Amount

Hatteras, N. C.: 5.7 in.



STORM OF JULY 10-14, 1901

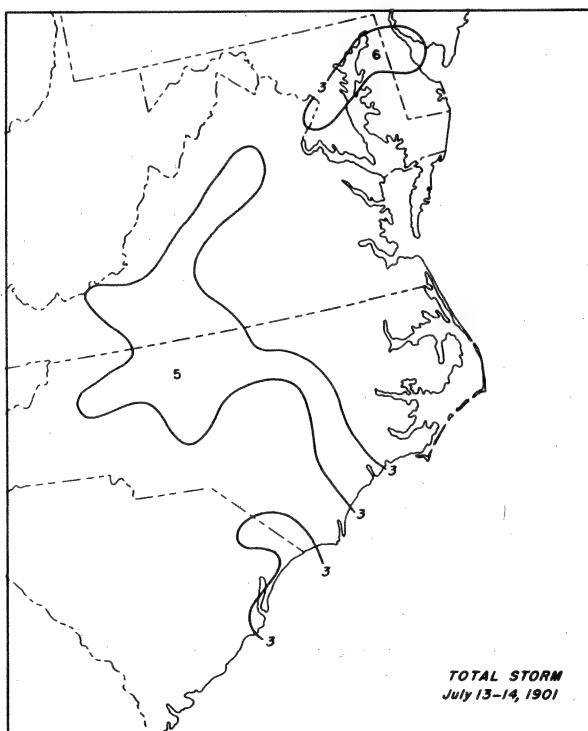
Meteorological Summary

The tropical disturbance that stagnated to the east of Hatteras, N. C., on July 10 and then entered the coast near the North Carolina-South Carolina border on the 13th was first observed in the eastern Caribbean on the 6th. The disturbance moved northwestward, passed south of Puerto Rico skirting the Bahamas, and reached a point just east of Hatteras on the 10th. After stagnating, the disturbance drifted slowly to the southwest and entered the coast near the North Carolina-South Carolina border on the 13th. The disturbance dissipated shortly after entering the coast.

Rainfall was light, occurring as scattered showers over the Southeastern States. Since no 24-hour rainfall amount exceeded 4 inches the total isohyetal map has been presented to show the over-all precipitation distribution for the period covering the approach and passing of the disturbance.

Maximum Total-Storm Amount

Sudlersville, Md.: 5.5 in.



STORM OF AUGUST 29-SEPTEMBER 5, 1913

Meteorological Summary

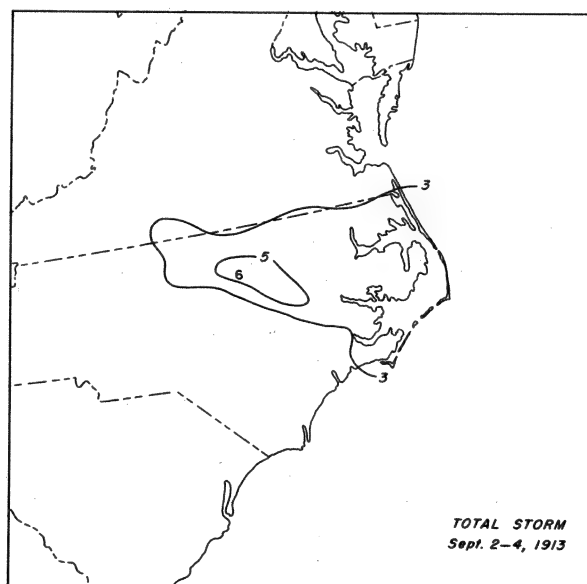
The hurricane that entered the North Carolina coast between Hatteras and Beaufort during the night of September 2-3 was first observed over the Windward Islands on August 29. The disturbance moved northwestward until September 2, then curved to the west and crossed the North Carolina coast during the night of September 3. After moving inland the hurricane weakened rapidly, passed Raleigh, N. C., at about 2 p.m. on the 3rd, and finally lost its identity over western North Carolina during the night of September 4-5.

Rainfall was moderate ahead and to the right of the hurricane as it crossed the Carolina coast during the night of September 2-3. Rains continued in the form of light-to-moderate showers over the Carolinas on the 3rd and 4th. Since maximum 24-hour amounts were less than five inches for the period September 2-5, the total-storm isohyetal map has been used to show the over-all pattern. The maximum 24-hour amounts for the period were as follows:

New Bern, N. C.:	4.4 in. on September 3
Louisberg, N. C.:	4.4 in. on September 4
Durham, N. C.:	4.1 in. on September 3

Maximum Total-Storm Amount

Durham, N. C.: 5.5 in.



STORM OF OCTOBER 20-21, 1929

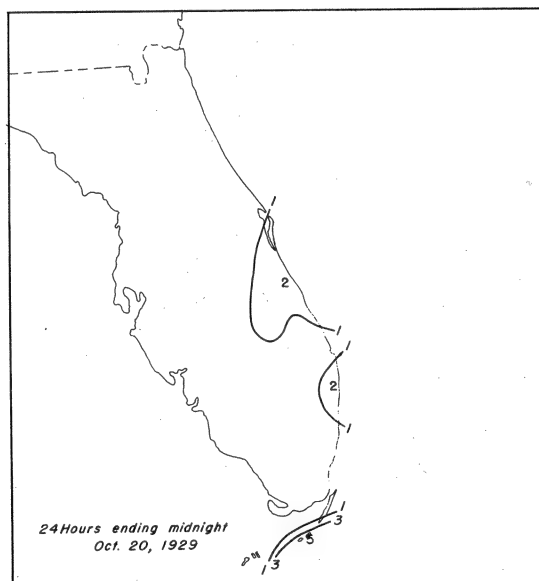
Meteorological Summary

The weak tropical disturbance that entered southern Florida during the night of October 20 was first observed over the southwestern Caribbean on October 18. It moved northeastward across Cuba and joined with an eastward-moving cold front as it entered Florida. Moving rapidly along the frontal zone, it reached the Great Lakes region by evening of October 22.

Rainfall associated with the tropical disturbance was confined to the Florida keys and southeastern Florida with only a small area of moderate-to-heavy rains as the disturbance moved through the region. Showers also fell as the disturbance moved along the frontal zone from Florida to the Great Lakes.

Maximum Total-Storm Amount

Long Key, Fla.: 5.1 in.



STORM OF SEPTEMBER 28-OCTOBER 1, 1943

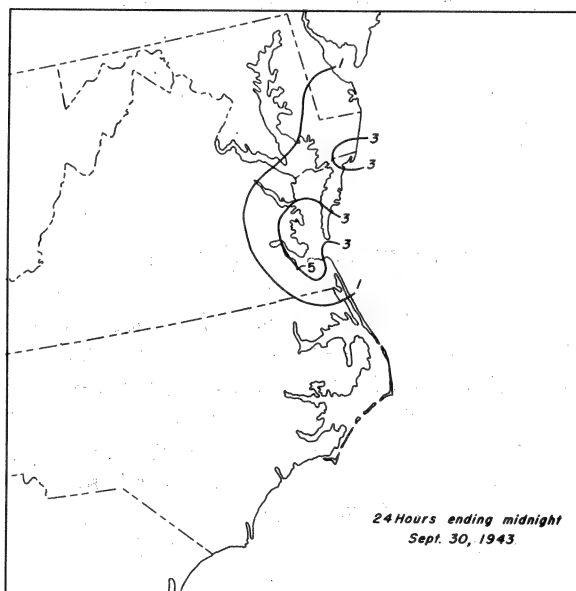
Meteorological Summary

The weak tropical disturbance that passed inland over the coasts of Maryland and Virginia during the afternoon and evening of September 30 was first observed as a weak wave southwest of Bermuda on September 28. The disturbance moved rapidly to the northwest, reaching the Virginia-Maryland coast on the 30th, then curved more northerly, and finally dissipated over southeastern Pennsylvania during the morning of October 1.

Rainfall was moderate over a small area in the forward quadrants of the disturbance as it entered the Virginia-Maryland coast on September 30. Amounts diminished rapidly as the disturbance curved northward and dissipated in southeastern Pennsylvania on October 1.

Maximum Total-Storm Amount

Diamond Springs, Va.: 4.6 in.



STORM OF AUGUST 10-12, 1901*

Meteorological Summary

The hurricane that crossed southern Florida during the period from the morning of August 10 to the morning of August 11 passed into the Gulf and then crossed the Gulf Coast near New Orleans, La., on the afternoon of the 14th.

Rainfall over the southern Florida Peninsula was exceptionally light during the passage of the storm on the 10th-11th. The maximum amount reported for this period was 3.0 inches at Everglades, Fla.

*See page 60, Gulf of Mexico Section

STORM OF NOVEMBER 3-5, 1904

Meteorological Summary

The tropical disturbance that entered the Gulf Coast east of Mobile, Ala., on November 3 was first observed over the southern Gulf of Mexico on October 31. It deepened and remained almost stationary until November 2, when it moved rapidly north-northeastward, entering the Coast east of Mobile, Ala., on the morning of November 3. The disturbance then curved to the east-northeast and traveled around the southern edge of an extratropical high-pressure area as it settled down into the Gulf region. The disturbance moved out to sea near Charleston, S. C., on the 5th.

Rainfall was generally light to moderate throughout the period of this storm. No station reported over 4 inches in 24 hours for this period.

STORM OF OCTOBER 18-20, 1913

Meteorological Summary

The weak tropical disturbance that entered the western Florida coast east of Pensacola during the afternoon of October 18 was first observed over the central Gulf late on the 17th. The disturbance moved northeastward and entered the western Florida coast. After crossing the coast, the weak disturbance continued northeastward along the eastern slope of the Appalachians until the night of the 19th, when it recurved to the north at an increased speed and reached Lake Ontario on the morning of the 20th.

Rainfall was light to occasionally moderate during the period from October 18-20, with general shower conditions prevailing from Florida to North Carolina along the path of the disturbance. The following 24-hour maximum amounts were reported:

Garniers (near), Fla.:	2.3 in. on October 18
Garniers (near), Fla.:	2.4 in. on October 19
Elkin, N. C.:	1.9 in. on October 20

STORM OF SEPTEMBER 15-19, 1914

Meteorological Summary

The tropical disturbance that entered the Atlantic Coast north of Jacksonville, Fla., during the early morning hours of September 17 was first observed over the Bahama Islands on September 15. The disturbance moved northwestward and, under the influence of an extratropical High centered over New England, curved sharply to the west and passed inland north of Jacksonville, Fla., on September 17. Continuing westward and filling as it moved, the disturbance finally lost its identity over the coast of eastern Texas on the 19th.

Rainfall was not exceptionally heavy along the path of the disturbance; general showery weather existed from the Georgia-Florida coast to eastern Texas during the period from the 17th to the 19th. The 24-hour maximum amounts for the period were as follows:

Fernandia, Fla.:	2.5 in. on September 17
Robertsdale, Ala.:	4.2 in. on September 18
Lakeside, La.:	3.9 in. on September 19

STORM OF SEPTEMBER 4-6, 1916

Meteorological Summary

The tropical disturbance that entered the North Carolina coast near Wilmington during the night of September 5-6 was observed over the eastern Caribbean on the 4th. The disturbance moved northwestward through the Bahamas during the night of the 4th-5th and reached the North Carolina coast the following night. After passing inland, the disturbance weakened rapidly as it curved to the north-northeast and moved out to sea over the Delmar Peninsula on the morning of the 7th.

Rainfall was light to occasionally moderate ahead and along the path of the disturbance as it moved from the North Carolina coast to the Delmar Peninsula on the morning of the 7th. Maximum 24-hour rainfall amounts for the period of the storm were as follows: Wilmington, N. C., 2.4 inches on September 5, and Nashville, N. C., 3.7 inches on September 6.

STORM OF SEPTEMBER 11-14, 1916

Meteorological Summary

The tropical disturbance that crossed the Florida east coast on September 12 was first observed east of the Bahama Islands on the 11th. It moved rapidly westward from the Bahamas into eastern Florida south of Melbourne on the afternoon of September 12. Continuing its rapid westward movement across Florida, the disturbance lost its identity by morning of September 13.

Rainfall was light throughout the period of the disturbance with no station reporting 24-hour rainfall amounts greater than one inch.

STORM OF OCTOBER 4-5, 1916

Meteorological Summary

The weak tropical disturbance that entered the Florida-Georgia coast during the evening of October 4 was observed about 400 miles off the Florida coast on the 2nd. The disturbance moved northwestward until it crossed the Florida-Georgia coast and then curved sharply to the southwest and dissipated over western Florida during the night of the 4th-5th.

Rainfall amounts of 1 inch or less were reported along the path of the disturbance, with the maximum 24-hour amount of 1.9 inches occurring a considerable distance north of the disturbance at Southport, N. C.

STORM OF JULY 4-5, 1919

Meteorological Summary

The tropical disturbance that entered the Gulf Coast west of Pensacola, Fla., on the morning of July 4 was first observed over the southeastern Gulf of Mexico on July 2. Moving almost due north through the western edge of the Bermuda High, the disturbance entered the Gulf Coast near Pensacola and continued northward, finally dissipating over central Texas on July 5.

Rainfall was light to moderate ahead of and along the path of the disturbance over western Florida and central Alabama. Twenty-four hour rainfall amounts over this area indicate a small 3-inch maximum over central Alabama and a point along the coast at Fairhope, Fla., where 5.2 inches fell on July 4.

STORM OF SEPTEMBER 22-24, 1920

Meteorological Summary

The tropical disturbance that entered the North Carolina coast near the mouth of the Cape Fear River on September 23 was observed southwest of Bermuda on the 22nd. The disturbance moved northwestward, entered the North Carolina coast, and dissipated shortly thereafter.

Rainfall was light ahead and along the path of the disturbance as it crossed the coast on September 23, and light showers continued along the path of the dissipating disturbance as it moved inland. The following maxima for the 23rd and 24th were reported:

Pinehurst, N. C.:	2.5 in. on September 23
Elkin, N. C.:	2.6 in. on September 24

STORM OF SEPTEMBER 23-OCTOBER 2, 1935

Meteorological Summary

The tropical disturbance that passed some 40 miles southeast of Miami, Fla., on the evening of September 28 formed over the Caribbean southwest of Haiti on the 23rd. The disturbance moved westward, then northward across Cuba on the 28th and curved to the northeast over the Atlantic, reaching Newfoundland on October 2.

Rainfall was generally light to the left of the disturbance over southeastern Florida during the time the disturbance skirted the coast on September 28. No reporting station along the southeastern Florida coast to the left of the disturbance reported over 2 inches of rain on the 28th.

STORM OF AUGUST 20-23, 1936

Meteorological Summary

The weak tropical disturbance that entered the Florida coast near Melbourne on August 21 was first observed over the Florida Straits on August 20. It moved northwestward, entering the Florida Peninsula, then continued across the Gulf Coast as it followed the flow around the Bermuda High, and finally dissipated over central Louisiana on August 23.

Rainfall was extremely light for the entire period of this storm, with light-to-moderate instability showers occurring in the moist tropical air over the Gulf Coast. The greatest 24-hour amount, 4.23 inches, occurred at Point Gibson, Miss., on August 23. No amounts were greater than 3 inches in any of the other Gulf States during the period from August 21 to August 23.

STORM OF MAY 11-14, 1948

Meteorological Summary

The minor disturbance that entered the Georgia coast near Savannah during the afternoon of May 12 had developed from an easterly wave south of the Bahamas on the 10th. The weak disturbance moved north-northwestward, skirting the Florida east coast, crossed the Georgia coast on the 12th, and lost its identity over western North Carolina by the next day.

Rainfall was generally light over the entire Southeast during the period of this disturbance. There were some light showers along the east coast of Florida on May 11, with a maximum amount of 3.27 inches at Malabar. When the disturbance entered the Georgia coast, rainfall was light to moderate, with the maximum amount, 4.52 inches, reported at Dublin, Ga.

STORM OF OCTOBER 18-21, 1950 (Love)

Meteorological Summary

The minor disturbance that entered the Florida coast near Cedar Keys early on the morning of October 21 was first observed in the Gulf south of Louisiana on the 18th. The hurricane formed as a sister hurricane was moving north-northwestward through the Florida Peninsula. The new hurricane followed a counterclockwise path, moving from a position off the Louisiana coast to the central Gulf, then curving to the east-northeast by the 20th. On the night of the 20th the hurricane lost most of its force, apparently due to the dry air encircling the center, and by the time it reached the Florida coast on the morning of the 21st, it was only a minor disturbance, dissipating rapidly thereafter.

Rainfall was very light as the disturbance moved inland and dissipated. A maximum 24-hour amount of 2.6 inches was reported at Ralford, Fla., on October 21.

IV. STORMS IN THE NORTH ATLANTIC COASTAL REGION

STORM OF AUGUST 31-SEPTEMBER 1, 1940

Meteorological Summary

Although there was a tropical storm located some distance off the Virginia coast during the period of heavy rain over western New Jersey the storm precipitation was more directly associated with a very slow eastward-moving cold front which became quasi-stationary over the area outlined by the central isohyetal pattern. The warm, moist current of air in the trough overlying the quasi-stationary front moved upward over the colder air west of the front. The lifting and convergence of the moist air produced the heavy rainfall, for the amount of available moisture was materially increased by the more tropical characteristics of the flow connected with the coastal storm.

Rainfall Data*

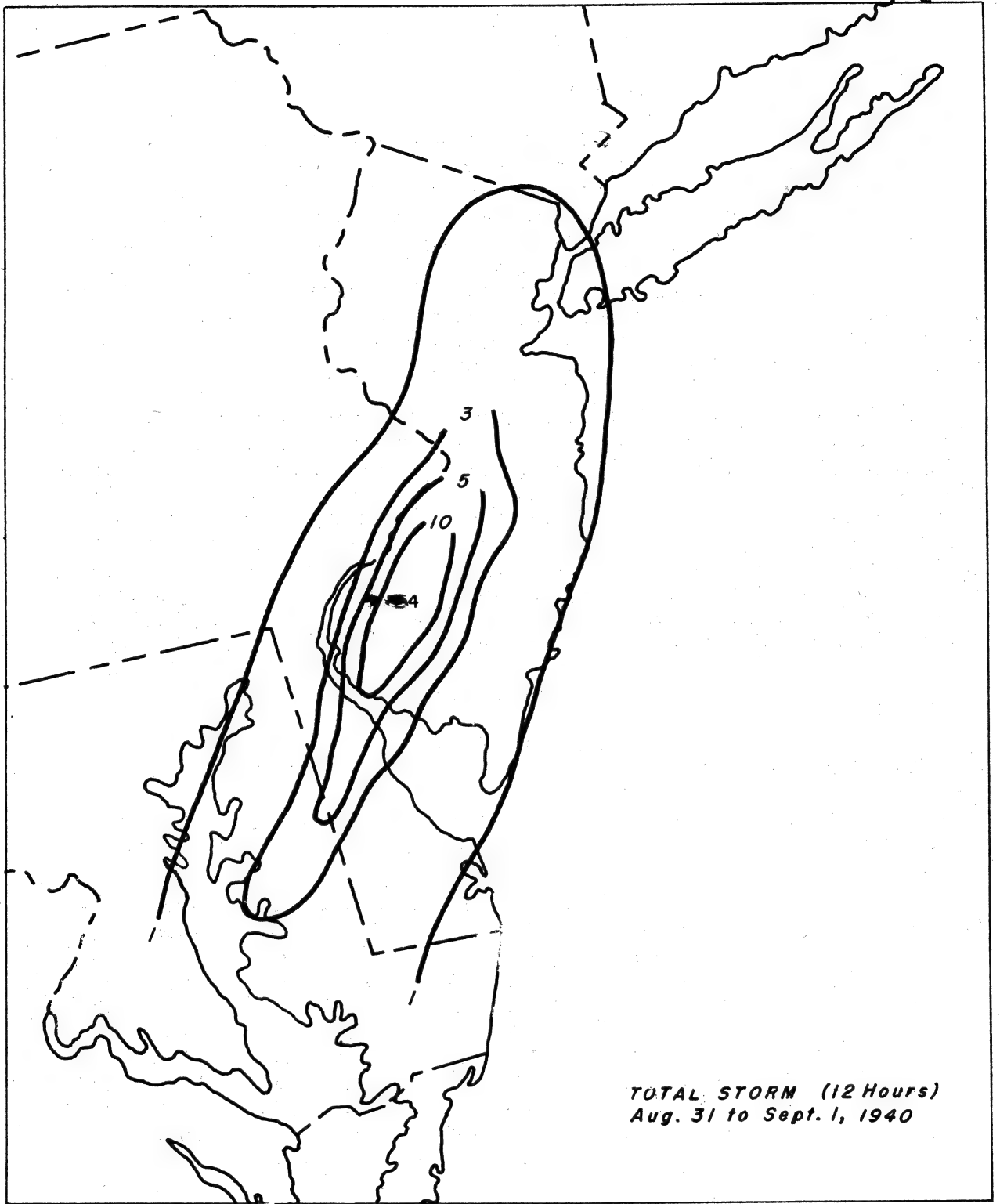
Maximum Total-Storm Amount

Ewan, N.J. : 24.0 in. from 1 a.m. to 10 a.m., September 1

Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.	Duration of Rainfall in Hours										
	1	2	3	4	5	6	7	8	9	10	12
Max. Station	7.3	11.3	14.2	16.7	19.4	21.0	22.6	23.6	24.0	24.0	24.0
10	6.8	10.4	13.2	15.9	18.4	20.1	21.4	22.3	22.7	22.7	22.7
50	5.3	9.3	12.3	14.7	16.8	18.6	19.6	20.1	20.4	20.4	20.4
100	4.6	8.5	11.3	13.6	15.4	17.1	18.0	18.6	18.7	18.8	18.8
200	3.8	7.3	9.9	11.8	13.5	15.0	15.9	16.3	16.4	16.5	16.5
500	2.8	5.4	7.6	9.1	10.4	11.3	12.2	12.7	12.9	13.0	13.1
1,000	2.2	4.2	5.7	7.0	8.0	8.8	9.5	10.0	10.3	10.4	10.5
2,000	1.5	2.8	4.0	5.0	5.7	6.3	6.8	7.1	7.3	7.5	7.7

*Storm Rainfall in the U.S., NA 2-4, 5/22/47 revision, C. of E., U.S. Army



STORM OF AUGUST 17-20, 1955 (Diane)

Meteorological Summary

The tropical disturbance that entered the North Carolina coast on the morning of August 17 as a severe hurricane was first observed as a cyclonic circulation northeast of the Leeward Islands on August 10. It intensified and followed a cyclonic path until August 13, then shifted to a more west-northwesterly direction, toward the North Carolina coast. After crossing the North Carolina coast near Wilmington,** the hurricane continued north-westward, reaching Lynchburg, Va., by midnight. It then curved northeastward, passing through southeastern Pennsylvania, southern New Jersey, south of Long Island, and finally between Martha's Vineyard and Nantucket, Mass., as it moved out to sea on the afternoon of the 19th.

Rainfall associated with this tropical disturbance was heavy, with the greatest amounts occurring in the vicinity of the hurricane path. The rainfall followed a normal distribution of maxima ahead and to the right of the disturbance until it curved to the northeast during the night of the 17th. From this point on the rains were heavier to the left of the center as it passed from northern Virginia to southern New England. The continued inflow of tropical air, plus orographic lifting over the foothills of Pennsylvania and southern New England, combined to produce record rainfall in southeastern Pennsylvania and New York, northern New Jersey, and southern New England on the 18th and 19th as the disturbance moved south of that area.

Rainfall Data*

Maximum Total-Storm Amount

Westfield Water Dept. Mass.: 19.8in. from 4 p.m. August 17 to 4 p.m. August 19

Maximum Average Depth of Rainfall in Inches (Preliminary)

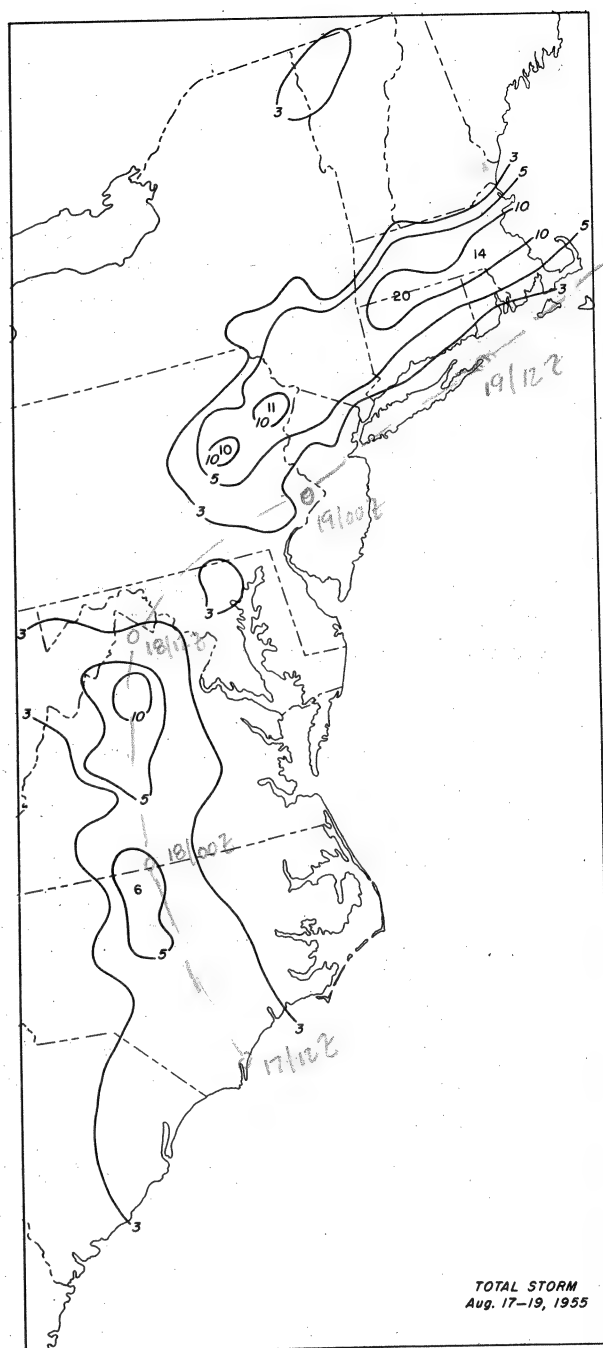
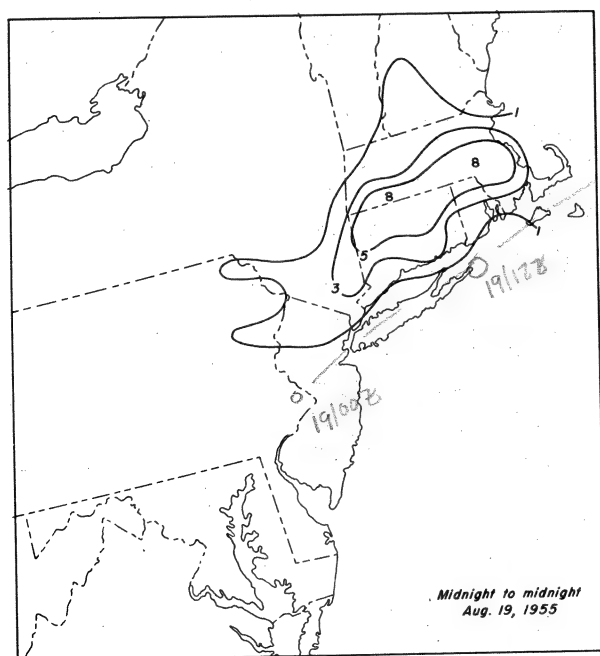
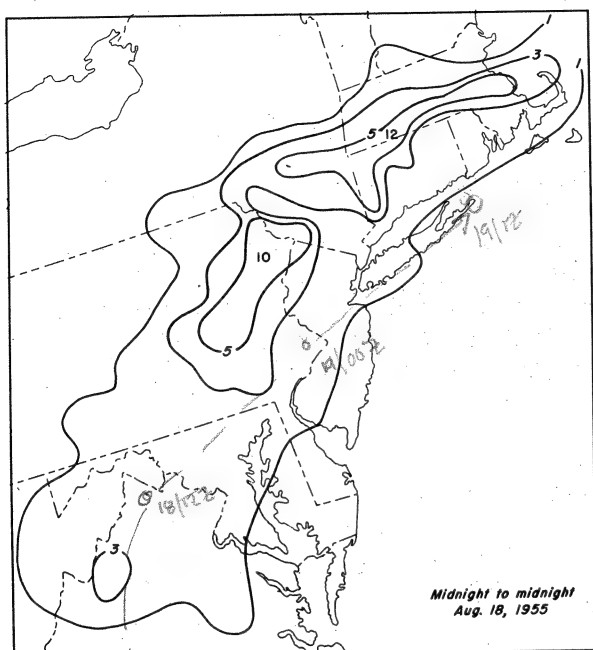
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72
Max. Station	7.9	10.9	12.5	15.7	18.6	19.5	19.8	19.8	19.8
10	7.8	10.7	12.1	15.2	18.2	18.9	19.4	19.6	19.6
100	7.6	10.5	11.6	14.6	17.6	18.1	18.8	19.0	19.0
200	7.4	10.2	11.4	14.2	17.1	17.6	18.2	18.4	18.4
500	6.8	9.7	10.8	13.4	16.3	16.8	17.2	17.3	17.3
1,000	6.2	9.2	10.2	12.4	15.4	15.9	16.2	16.4	16.4
2,000	5.4	8.0	9.4	11.2	14.0	14.5	14.9	15.2	15.2
5,000	4.0	6.3	7.9	9.5	11.7	12.1	12.6	13.0	13.0
10,000	3.1	5.0	6.5	8.0	9.7	10.0	10.6	10.8	10.8
20,000	2.1	3.6	4.9	6.3	7.6	7.9	8.3	8.5	8.5
35,000	1.3	2.5	3.6	4.7	5.6	6.0	6.4	6.5	6.5

*Storm Rainfall in the U. S., NA 2-22A, C. of E. U. S. Army

**See page 201, South Atlantic Section



STORM OF AUGUST 19, 1939

Meteorological Summary

The excessive rainfall that occurred on August 19 can be attributed to the remnants of a decaying hurricane that had entered the Florida coast on the 11th.** The disturbance stagnated over southern Alabama until the 17th, then passed east of the Appalachians, and finally dissipated west of the area of maximum rainfall in southeastern Pennsylvania on August 20.

Rainfall Data*

Maximum Total-Storm Amount

Manahawkin, N. J.: 17.8 in. from 7 a.m. August 19 to 10 p.m. August 19

Maximum Average Depth of Rainfall in Inches

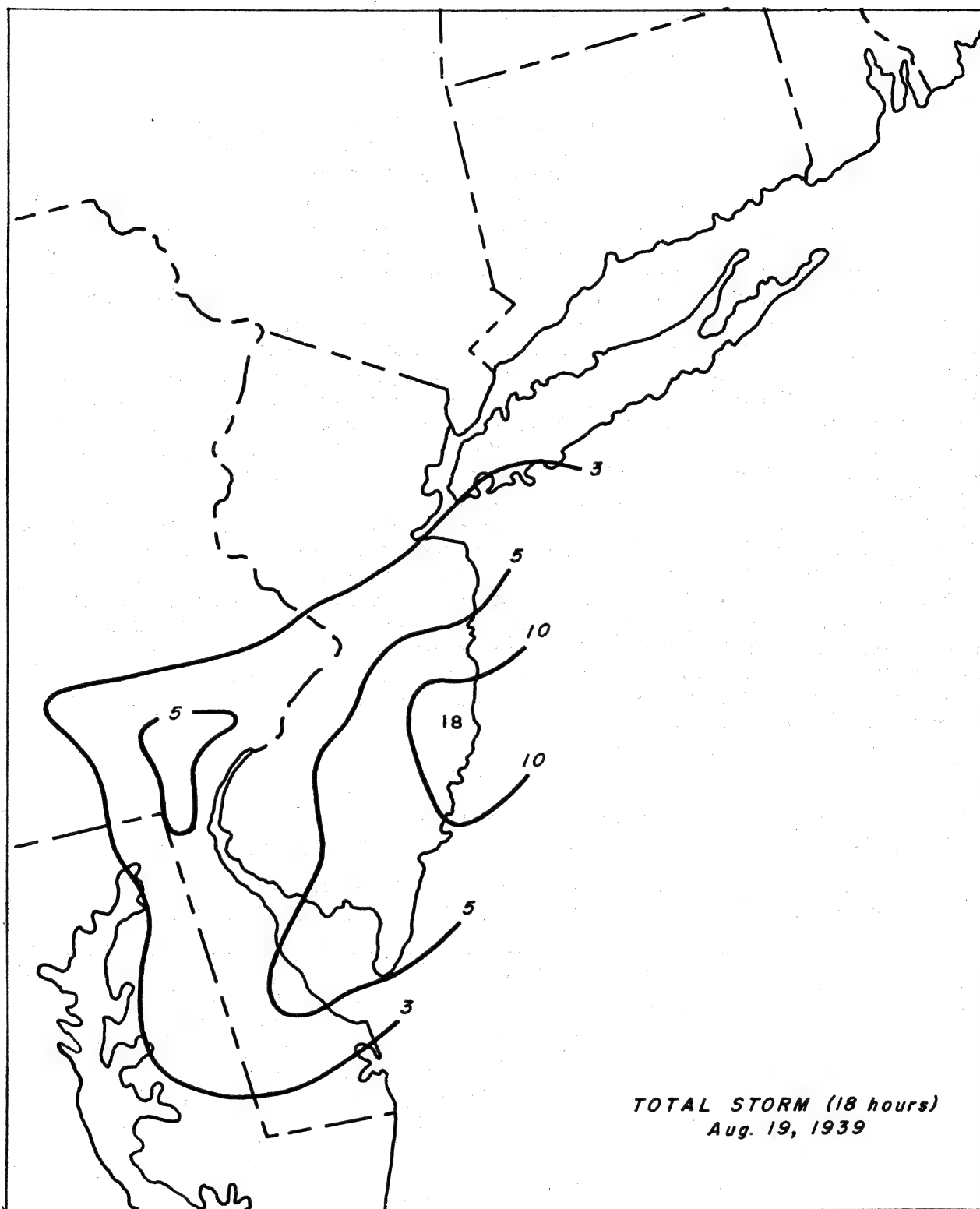
Area in Sq. Mi.

Duration of Rainfall in Hours

	3	6	9	12	15	18
10	6.4	9.7	14.3	17.1	17.6	17.8
100	6.1	9.0	13.4	15.8	16.3	16.5
200	5.8	8.6	12.8	15.1	15.6	15.7
500	5.4	7.9	11.3	13.4	14.0	14.1
1,000	4.7	7.0	9.4	11.3	12.0	12.2
2,000	3.7	5.8	7.3	8.9	9.6	10.0
5,000	2.2	4.0	5.2	6.2	6.7	7.1
10,000	1.5	2.9	4.0	4.6	5.0	5.4

*Storm Rainfall in the U. S., NA 2-3, C. of E., U. S. Army

**See page 156, South Atlantic Section



STORM OF SEPTEMBER 17-22, 1938

Meteorological Summary

The severe hurricane that entered the New England coast during the afternoon of September 21 formed over the south-central Atlantic on September 16. The disturbance moved west-northwestward along the southern edge of the Atlantic subtropical High and deepened northeast of the Windward Islands on the 19th. From there the hurricane curved northwestward, then northward, and crossed Long Island into Connecticut near Bridgeport; the hurricane continued due north and dissipated over northern Vermont on the 19th.

Other synoptic features during the period of this hurricane were of great importance with respect to the total rainfall. The Atlantic subtropical High, which had moved eastward to the central Atlantic, was weakened along its western edge by a series of waves moving eastward out of an extensive upper trough over the Great Lakes region. The resultant circulation brought a steady flow of warm air over the Atlantic Seaboard and into the warm sectors of eastward-moving waves during the entire period. This produced light-to-moderate showers along the East Coast from the Carolinas northward until September 20, when the tropical disturbance moved into the forward portion of a sharp upper trough moving eastward from the Great Lakes. The heaviest rains began at this time in North Carolina** and spread northeastward into New England. The rains ceased along the Carolina and Virginia coasts when drier air flowed into that area. The rains over New England did not diminish at this time, however, for as the hurricane moved northward, it increased the moisture inflow immediately ahead of the center and gave New England a secondary pre-hurricane rainfall maximum prior to moving inland during the afternoon of the 21st. As drier air from the west flowed over New England, in the rear of the hurricane, the rain ended in that area.

Rainfall Data*

Maximum Total-Storm Amount

Buck, Conn.: 17.1 in. from 6 p.m., September 17 to 6 p.m., September 21

Maximum Average Depth of Rainfall in Inches

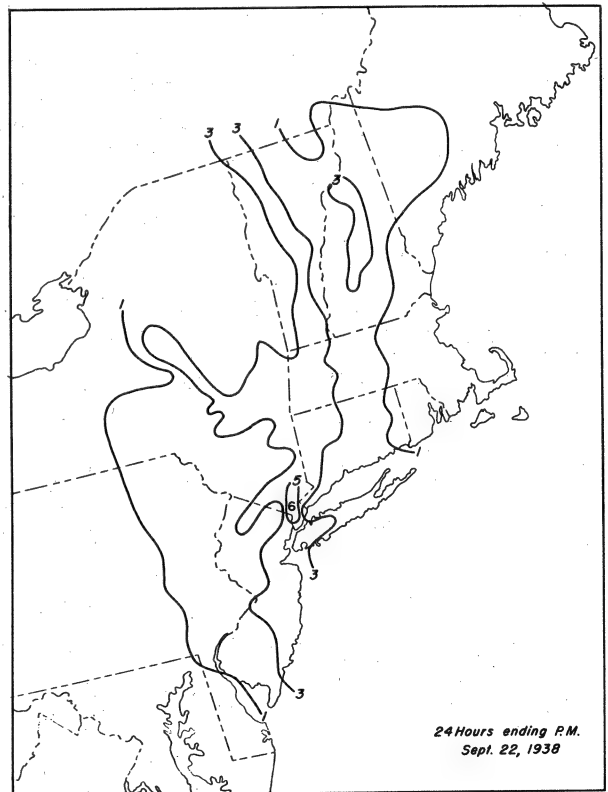
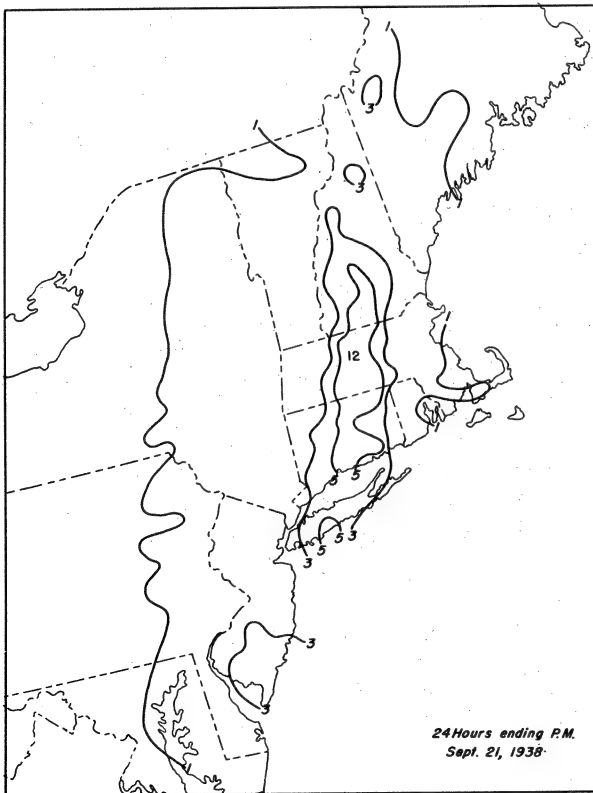
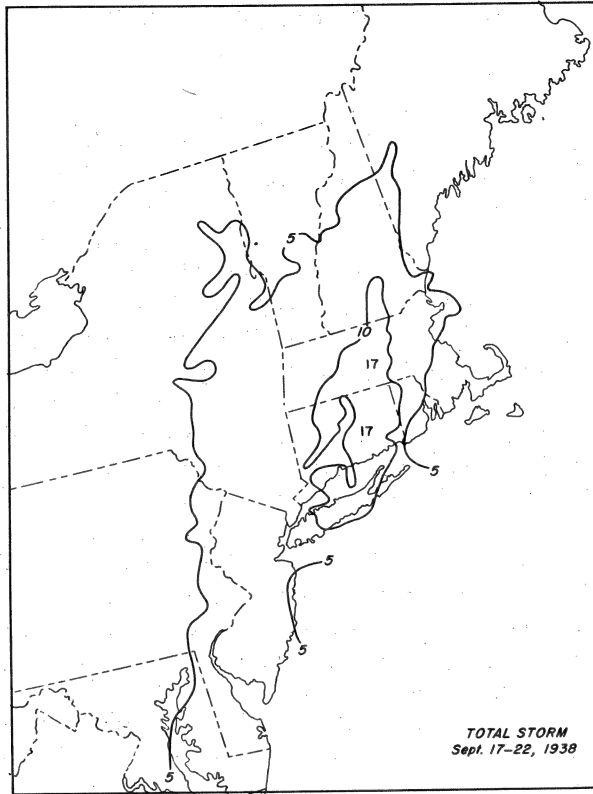
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	120
10	6.4	8.2	9.6	11.3	12.2	13.2	14.3	15.0	15.8	16.9	17.1
100	5.0	6.8	8.3	9.5	10.4	11.4	13.0	14.0	15.1	16.5	16.8
200	4.6	6.3	7.8	9.0	9.8	10.9	12.4	13.4	14.8	16.1	16.4
500	4.1	5.6	7.1	8.3	9.0	10.2	11.6	12.6	14.2	15.4	15.7
1,000	3.7	5.1	6.6	7.7	8.4	9.6	11.0	12.0	13.8	14.6	15.0
2,000	3.3	4.6	6.0	7.2	7.8	9.0	10.4	11.3	13.2	13.8	14.2
5,000	2.7	3.9	5.1	6.3	6.9	8.2	9.5	10.3	12.0	12.4	12.8
10,000	2.3	3.3	4.4	5.7	6.2	7.4	8.6	9.6	10.9	11.3	11.6
20,000	1.9	2.8	3.8	4.9	5.5	6.4	7.5	8.6	9.6	10.0	10.3
50,000	1.4	2.1	2.8	3.7	4.2	4.8	5.8	6.6	7.3	7.7	8.0
67,000	1.2	1.9	2.5	3.3	3.7	4.2	5.1	5.9	6.5	6.8	7.1

*Storm Rainfall in the U. S., NA 2-2, C. of E., U. S. Army

**See page 138, South Atlantic Section



STORM OF AUGUST 20-24, 1933

Meteorological Summary

The disturbance was first observed on August 17 at 17°N and 49°W. It moved northwestward around the southern edge of the Atlantic subtropical High and reached the Virginia-Carolina coast early on August 23. Meanwhile, a Canadian polar High moved into the eastern Great Lakes region, preceded by a weak cold front that dissipated off the East Coast on the 21st. This High reinforced the westerly flow north of the disturbance and seemingly prevented the tropical disturbance from curving to the northeast. The disturbance took on extratropical characteristics over Pennsylvania on August 24 and was caught in the circulation of a new extratropical Low moving from the northwest on the 25th. The remnants of the disturbance moved along this system as a wave formation through northern New England.

The precipitation that occurred in a wide zone extending from northeastern North Carolina to southeastern New York from August 21 to August 25 fell in two distinct periods. The first was associated with warm moist air being lifted over a dissipating frontal surface along the Coast on the 21st. The second began as light showers on the 23d but increased to general moderate-to-heavy rains as the tropical disturbance moved through the area on August 24.**

Rainfall Data*

Maximum Total-Storm Amount

Peekamoose, N.Y.: 16.0 in. from 1 p.m., August 21 to 7 p.m., August 24

Maximum Average Depth of Rainfall in Inches

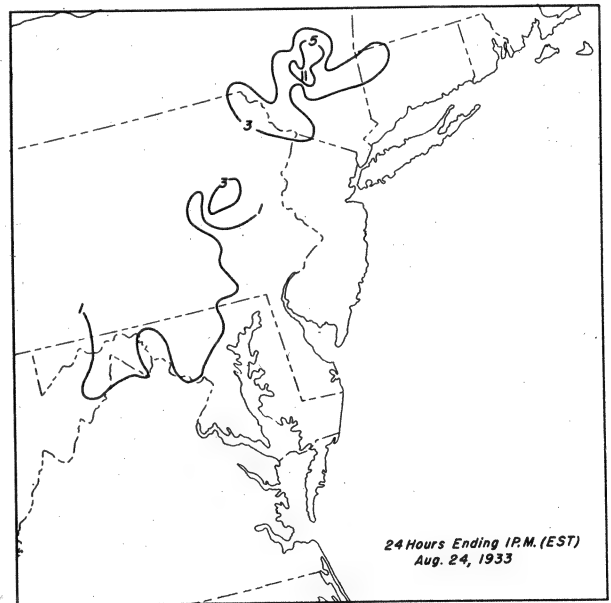
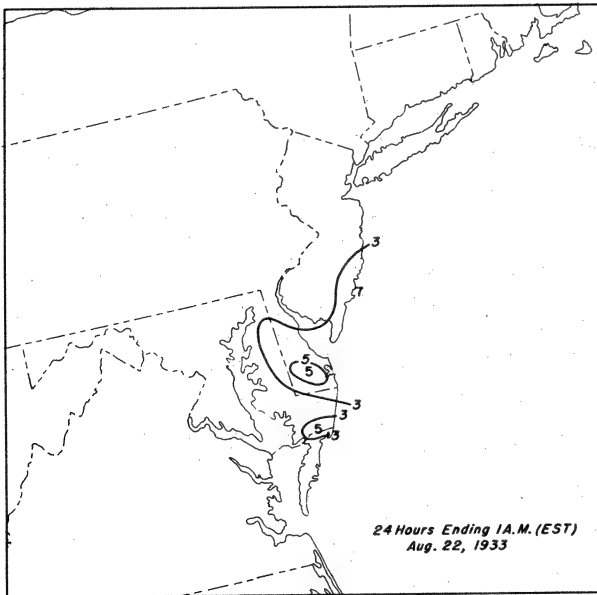
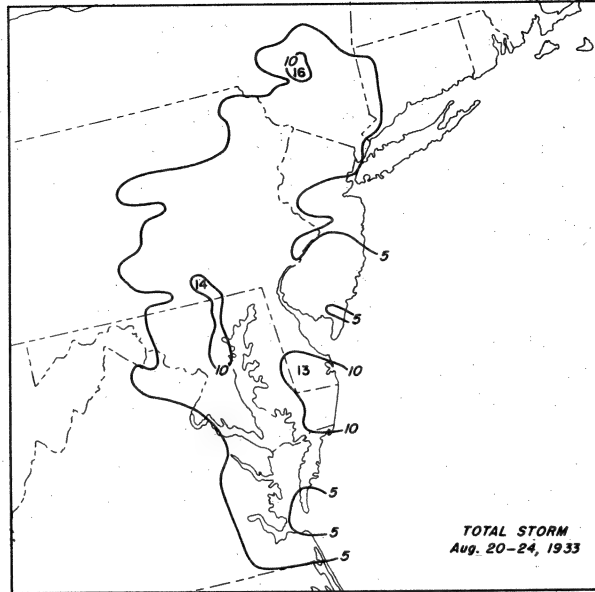
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	108
Max. Station	7.1	9.6	10.0	11.6	12.2	12.3	13.3	15.2	15.8	16.0	16.0
10	6.8	9.3	9.7	11.2	11.7	11.8	12.9	14.8	15.6	15.9	15.9
100	5.5	8.1	8.8	9.8	10.1	10.1	11.3	12.9	13.9	14.3	14.3
200	5.1	7.7	8.5	9.3	9.6	9.6	10.7	12.2	13.2	13.6	13.6
500	4.5	7.2	8.1	8.7	8.8	8.9	9.9	11.3	12.3	12.6	12.6
1,000	4.1	6.8	7.7	8.2	8.3	8.3	9.3	10.6	11.6	11.8	11.8
2,000	3.7	6.3	7.3	7.7	7.8	7.8	8.6	9.8	10.9	11.1	11.1
5,000	3.1	5.6	6.5	7.0	7.0	7.0	7.8	8.9	9.8	10.0	10.0
10,000	2.7	5.0	5.8	6.4	6.4	6.4	7.1	8.1	9.0	9.2	9.3
20,000	2.3	4.3	5.0	5.6	5.7	5.7	6.4	7.4	8.1	8.4	8.5
50,000	1.7	3.1	4.0	4.3	4.5	4.7	5.2	6.1	6.5	7.1	7.2
66,000	1.5	2.7	3.6	3.8	4.0	4.2	4.8	5.5	5.9	6.4	6.4

*Storm Rainfall in the U. S., NA 1-24, GL 4-23, C. of E., U. S. Army

**See page 184, South Atlantic Section



STORM OF OCTOBER 7-11, 1903

Meteorological Summary

The rainfall associated with this storm was not caused directly by a tropical disturbance but was the result of a tropical Low joining a stagnating extratropical cyclone located off the coast of North Carolina on October 8. The added influence of the tropical disturbance quickly modified the cool dry air to the rear of the cyclone and spread maritime tropical air northward and westward ahead of the low center, producing a convergence line over New Jersey and south-central New York during the night of October 8. Heavy rains occurred along this convergence line during the afternoon and night of October 8 and continued to fall until the afternoon of the 9th when the rains ended abruptly. As the convergence line dissipated, the extratropical disturbance remained stationary off the Carolina coast until October 11, producing little or no rain along the Atlantic Coast. On October 11 the disturbance moved rapidly northward, then curved northeastward out to sea off Cape Cod with light rains falling ahead of the disturbance as it retreated.

Rainfall Data*

Maximum Total-Storm Amount

Patterson, N.J.: 15.5 in. from 2 a.m. October 8 to 8 a.m., October 11

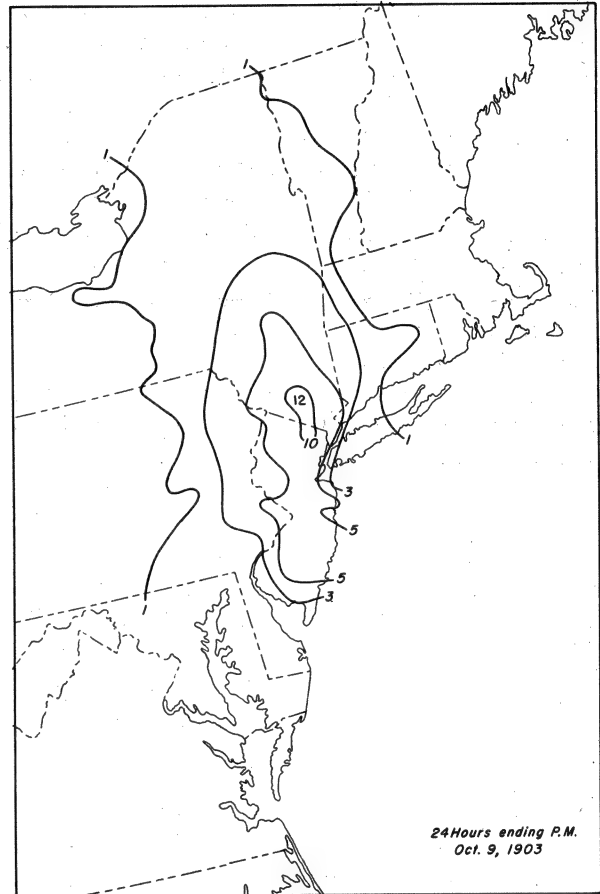
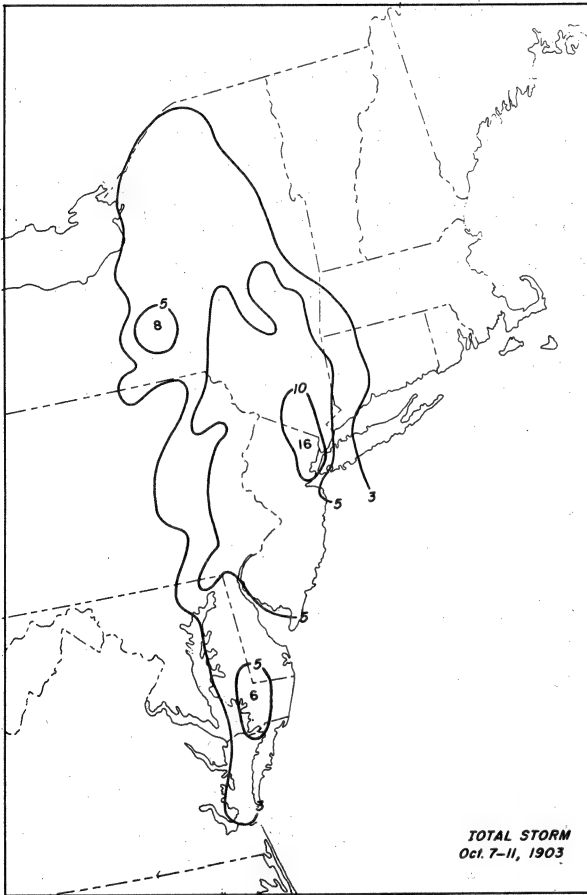
Maximum Average Depth of Rainfall in Inches

Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96
10	5.4	8.0	11.7	13.7	14.5	14.9	15.0	15.0	15.0	15.5
100	5.0	7.3	10.9	12.8	13.5	13.8	14.0	14.0	14.4	14.5
200	4.7	7.1	10.4	12.4	13.1	13.4	13.5	13.5	13.9	14.0
500	4.1	6.8	9.6	11.6	12.4	12.7	12.8	12.8	13.2	13.3
1,000	3.7	6.4	8.9	10.9	11.7	12.0	12.1	12.1	12.4	12.5
2,000	3.2	5.9	8.1	10.2	10.9	11.1	11.3	11.3	11.6	11.6
5,000	2.6	4.9	6.9	9.0	9.6	9.7	9.9	9.9	10.2	10.2
10,000	2.1	4.1	5.8	7.7	8.3	8.5	8.7	8.7	8.9	9.0
20,000	1.7	3.2	4.5	6.1	6.7	7.1	7.4	7.4	7.6	7.7
35,000	1.3	2.4	3.5	4.6	5.3	5.8	6.1	6.1	6.3	6.4

*Storm Rainfall in the U. S., GL 4-9, C. of E., U. S. Army



STORM OF AUGUST 11-15, 1955 (Connie)

Meteorological Summary

The severe hurricane that passed inland west of Cape Hatteras** about 8:30 a.m., August 12, was first observed on August 3 near 16.6N and 48.0W. It reached hurricane intensity on August 5 and passed north of the Virgin Islands and Puerto Rico on the 6th and 7th. It gradually decelerated and continued in a general westward direction until August 11, when it curved north-northwestward, then northward, and accelerated just prior to entering the North Carolina coast. It continued its northward movement across Chesapeake Bay, reaching central Pennsylvania on August 13 where it recurved to the northwest and passed over Lake Erie and Lake Huron on the 14th.

Moderate-to-heavy rainfall occurred from eastern North Carolina to western New York and southern New England as this hurricane moved through the area. A period of general rains extended over this same area on August 11 well in advance of the tropical disturbance; an area of lesser total rainfall amounts occurred in a small area north of Maryland along the path of the disturbance as it weakened on August 12. The moderate-to-heavy showers resumed just north of this small area during the afternoon and night of the 12th as the disturbance took on extratropical characteristics; as the weakened disturbance moved northwestward, the rains diminished and then ended over the entire region by August 14 as the disturbance passed over the eastern Great Lakes.

Rainfall Data*

Maximum Total-Storm Amount

Slide Mountain, N.Y.: 15.2 in. from 6 a.m. August 11 to 6 p.m. August 14

Maximum Average Depth of Rainfall in Inches (Preliminary)

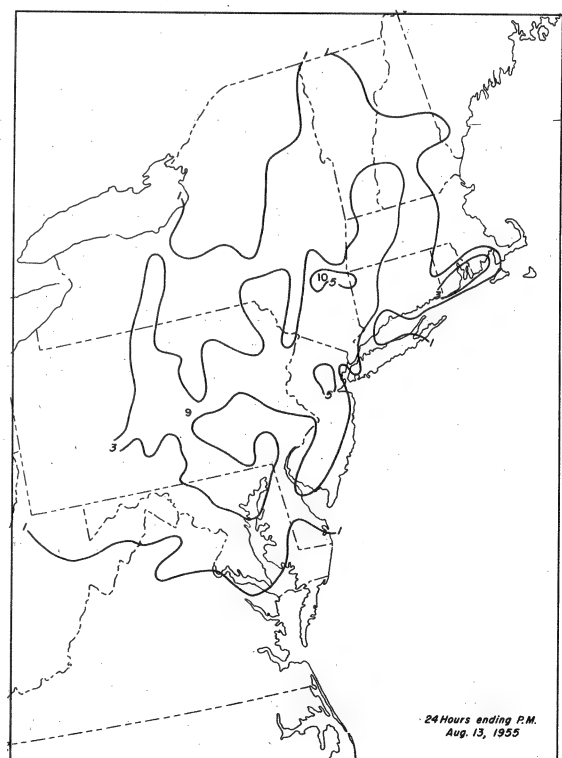
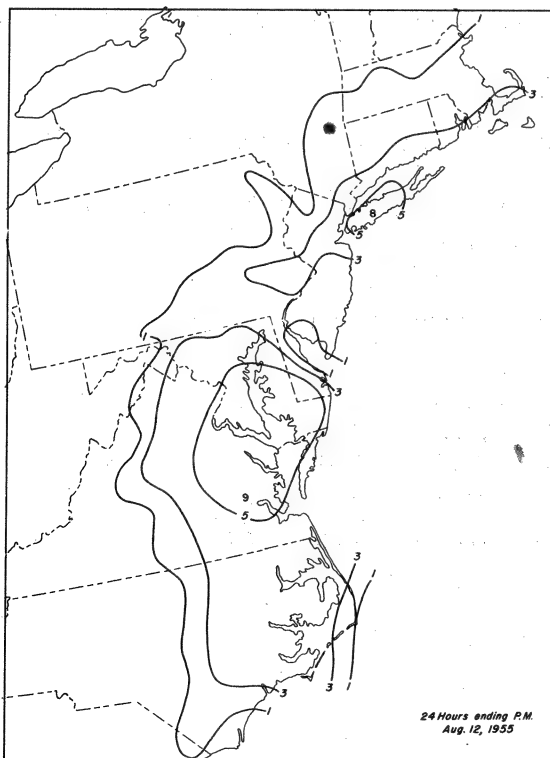
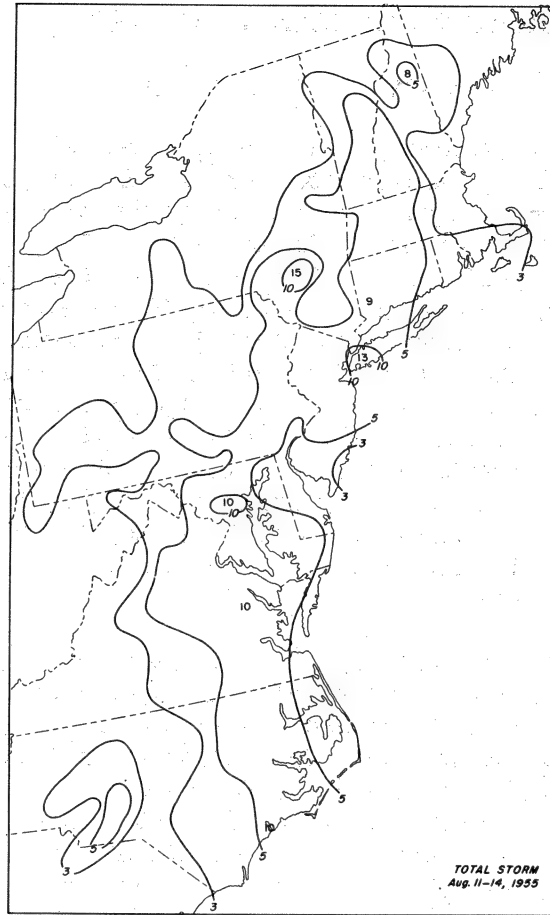
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60	72	96	120
Max. Station	6.6	9.8	10.9	11.4	12.3	12.5	12.6	13.7	13.9	15.2	15.2
10	5.6	8.8	10.3	10.8	11.5	12.0	12.5	13.4	13.5	14.5	14.5
100	4.4	6.9	8.0	8.4	9.6	11.1	12.0	12.6	12.7	13.1	13.1
200	3.9	6.0	6.9	7.5	8.8	10.5	11.6	12.1	12.3	12.5	12.5
500	3.3	4.8	5.6	6.5	7.9	9.7	10.7	11.1	11.3	11.5	11.5
1,000	3.0	4.1	5.0	6.0	7.4	9.0	9.8	10.2	10.4	10.6	10.6
2,000	2.6	3.6	4.6	5.5	6.9	8.4	9.0	9.4	9.6	9.8	9.8
5,000	2.1	3.0	4.0	5.0	6.3	7.5	8.1	8.4	8.7	9.0	9.0
10,000	1.7	2.6	3.6	4.5	5.6	6.6	7.2	7.7	8.0	8.4	8.4
20,000	1.4	2.3	3.1	3.9	4.8	5.5	6.2	6.9	7.2	7.5	7.5
50,000	1.0	1.9	2.5	3.1	3.6	4.1	4.8	5.4	5.7	6.0	6.0
81,000	0.9	1.7	2.2	2.7	3.0	3.4	4.0	4.5	4.8	5.1	5.1

*Storm Rainfall in the U. S., NA 2-21A, C. of E., U. S. Army

**See page 181, South Atlantic Section



STORM OF SEPTEMBER 16-17, 1932

Meteorological Summary

The heavy rains of September 16-17, 1932, occurred in an inverted-V trough which extended northward from the center of a tropical storm moving up along the East Coast. The tropical storm was first observed in the southwestern part of the Gulf of Mexico on September 9. It progressed very slowly northward, then northeastward, until the evening of the 14th when it was over Apalachee Bay. The storm crossed northern Florida** during the night of the 14th with moderate-to-heavy showers ahead of it. By evening of the 15th, it was centered 100 miles southeast of Wilmington, N.C., moving north-northeastward at about 25 miles per hour. A large high-pressure area prevailed over the North Atlantic with a wedge of relatively cool air extending southwestward over New England. A weak surface front, extending southward from a Low over Ontario, was moving eastward. By morning of September 16 the tropical storm was centered about 150 miles east of Norfolk, Va. Southerly winds extended to 6000 feet over New England and moderate northwesterly winds were evident west of the Appalachians.

Rains began early on the morning of September 16 in the southern part of New England as the tropical air underwent convergence in the inverted-V trough ahead of the low center. By evening of the 16th the center of the tropical storm was about 100 miles south-southwest of Nantucket. The trough extending northward through New England had become pronounced, and during the day intense rain fell along the trough line from Long Island to Maine. The rains ended progressively eastward and northward during the night of the 16th as the low center moved rapidly northward, and cold dry air overspread New England as far as central Maine. On the morning of the 17th, with the storm southwest of Eastport, Me., a final burst of rain occurred over Maine.

Rainfall Data*

Maximum Total-Storm Amount

Westerly, R.I.: 12.2 in. from 3 a.m. to 11 p.m. September 16

Maximum Average Depth of Rainfall in Inches (Preliminary)

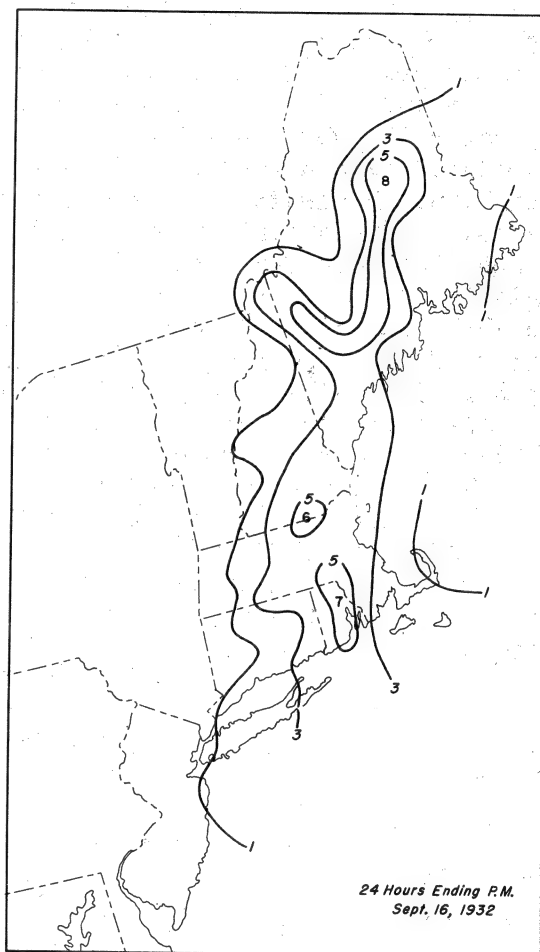
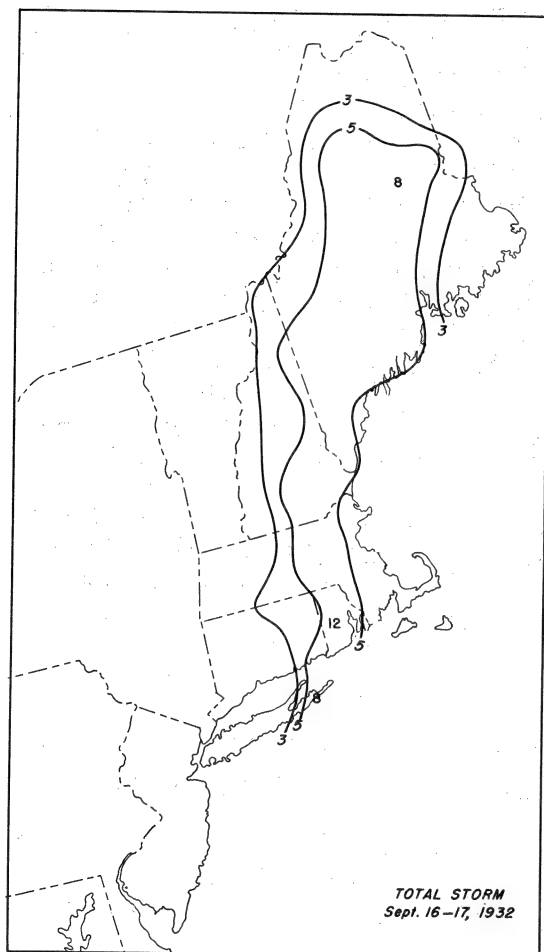
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48
10	7.0	10.2	11.9	12.2	12.2	12.2	12.2
200	6.8	10.2	11.2	11.6	11.6	11.6	11.6
500	6.4	9.4	10.4	11.0	11.0	11.0	11.0
1,000	5.8	8.6	9.5	10.2	10.2	10.2	10.2
2,000	5.2	7.8	8.5	9.0	9.1	9.2	9.2
5,000	4.0	6.5	7.3	7.9	8.1	8.2	8.2
10,000	3.2	5.5	6.5	6.9	7.2	7.4	7.5

*Storm Rainfall in the U. S., NA 1-20, C. of E., U. S. Army

**See page 205, South Atlantic Section



STORM OF SEPTEMBER 12-15, 1944

Meteorological Summary

The tropical storm that entered the New England coast in the vicinity of Narragansett Bay, R.I., shortly before midnight of September 14 originated near the Windward Islands on September 8 and drifted slowly west-northwestward approaching Cape Hatteras, N.C., on the 14th. The prevailing pressure pattern was similar to that of September 1938 with a deep primary trough west of the Appalachians that remained almost stationary until September 14. This feature plus the westward shift of the Atlantic subtropical High, produced a strong southerly flow of warm moist air over the Middle Atlantic and New England areas from the 12th to the 14th.

The bulk of the rainfall occurred in three bursts. The first, on September 12, was concentrated over New Jersey and Long Island Sound and was associated with a weak wave, moving along the eastern edge of the upper trough, which dissipated over southeastern Pennsylvania on the morning of the 13th. The second burst occurred late on the 13th along the inverted-V trough that developed over an area extending from New Jersey to southern New England. As the hurricane approached Cape Hatteras, N.C., on the morning of the 14th, it recurved north-northeastward on moving into the forward circulation of the accelerating upper trough west of the Appalachians. During the next 24 hours these conditions produced the third and heaviest burst of rain affecting the entire area from eastern North Carolina to Maine. Clearing was rapid after the hurricane moved northeastward and cool dry air behind the upper trough flowed into the area.

It is interesting to note that the rainfall immediately accompanying this hurricane was greater than that for the hurricane of September 1938. This may be due, in part, to the slower rate of movement of the 1944 hurricane. A complete history of this storm can be found in Monthly Weather Review, Vol. 72, September 1944.

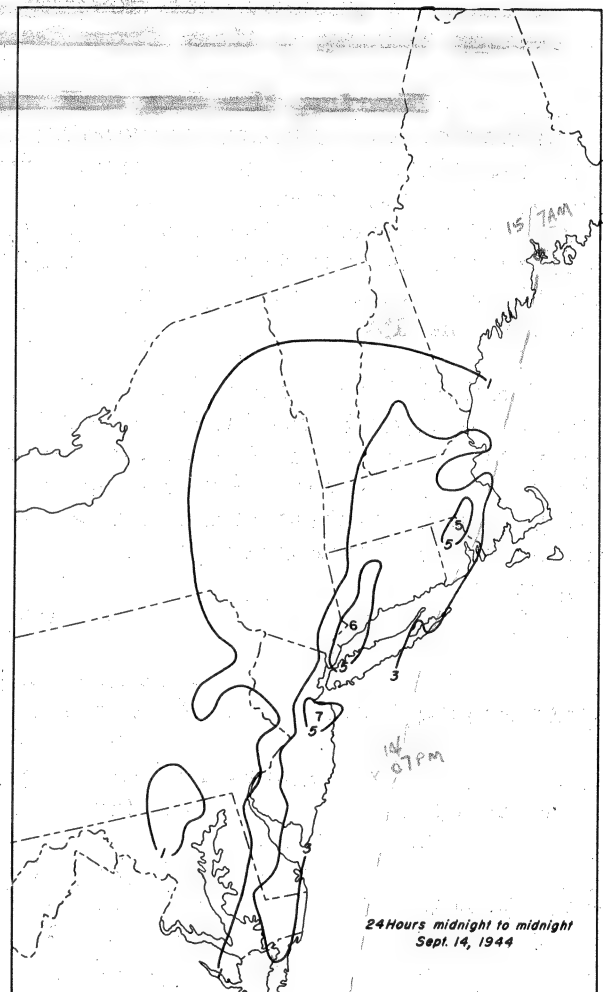
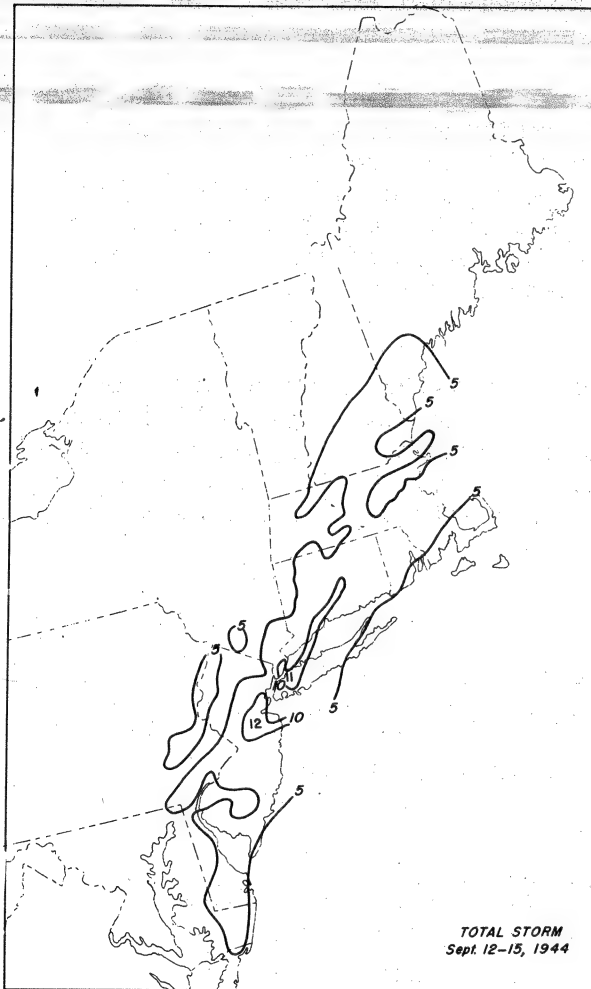
Rainfall Data*

Maximum Total-Storm Amount

New Brunswick, N.J.: 12.0 in. from noon, September 12 to midnight, September 14

Area in Sq. Mi.	Maximum Average Depth of Rainfall in Inches									
	Duration of Rainfall in Hours									
	6	12	18	24	30	36	48	60	72	96
Max Station	6.3	6.5	6.5	7.1	8.8	9.6	10.0	11.9	12.0	12.0
10	6.2	6.3	6.4	7.0	8.6	9.5	9.9	11.8	11.9	11.9
100	5.6	5.8	5.9	6.4	7.9	8.8	9.5	11.3	11.6	11.6
200	5.4	5.7	5.8	6.2	7.6	8.6	9.3	11.1	11.4	11.4
500	5.0	5.4	5.5	5.8	7.2	8.2	9.1	10.8	11.1	11.1
1,000	4.6	5.2	5.2	5.6	6.9	7.9	8.8	10.5	10.7	10.7
2,000	4.2	4.9	4.9	5.3	6.5	7.5	8.5	10.0	10.2	10.2
5,000	3.6	4.5	4.5	4.8	5.9	6.8	7.8	9.2	9.3	9.3
10,000	3.1	4.1	4.1	4.4	5.1	6.0	6.9	8.1	8.3	8.3
20,000	2.6	3.5	3.7	3.9	4.4	5.1	6.0	7.0	7.2	7.2
50,000	1.8	2.5	2.7	2.9	3.3	3.9	4.7	5.4	5.8	5.8

*Storm Rainfall in the U. S., NA 2-16, C. of E., U. S. Army



STORM OF SEPTEMBER 12-15, 1904

Meteorological Summary

The meteorological situation which produced this storm was set up early on the morning of September 13 with the northward movement of a weak tropical disturbance located off the east coast of Florida. Simultaneously, a cold polar air mass was moving southeastward across the continent with the leading edge along a line from Duluth south-southwestward to Amarillo.

During the day and night of September 13 and 14, the tropical disturbance gained in intensity and continued its northward movement, passing inland over Charleston, S.C.** about noon of the 14th. Here its energy was augmented by the supply of cold air from the west, since by then the cold front had reached a line extending from Binghamton through Elkins to Atlanta. This maintained the intensity of the disturbance as it traveled northward and finally curved out over the ocean near Cape Cod late on the morning of the 15th.

Rainfall was moderate to heavy just forward of the disturbance as it moved inland over the Carolinas on the morning of September 14 but diminished along the path of the disturbance as it curved northeastward. On the night of the 14th, however, when the energy of the cold air was fully realized, intense rain resulted ahead and to the left of the tropical disturbance from New Jersey to Massachusetts.

Rainfall Data*

Maximum Total-Storm Amount

Friesburg, N.J.: 10.0 in. from 6 a.m., September 14 to noon, September 15

Maximum Average Depth of Rainfall in Inches

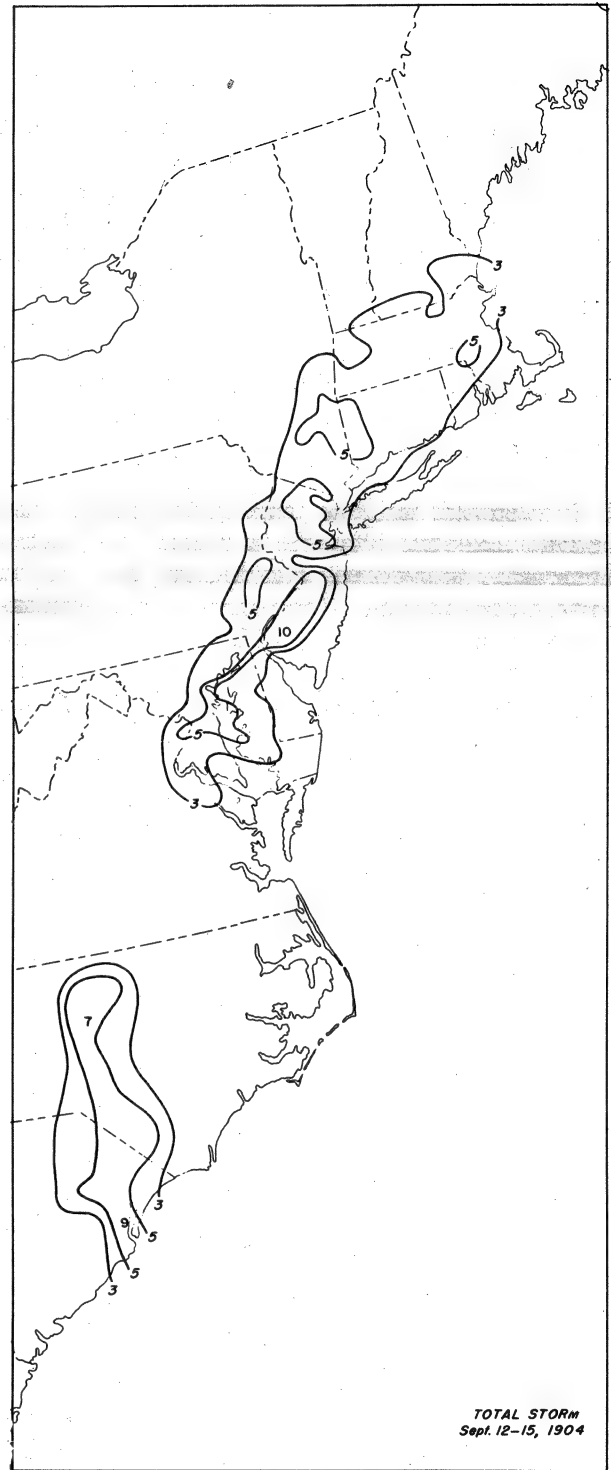
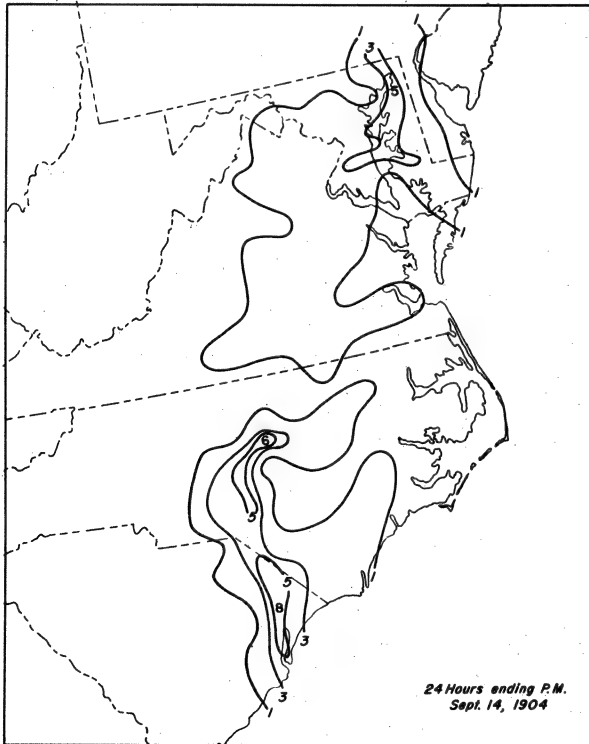
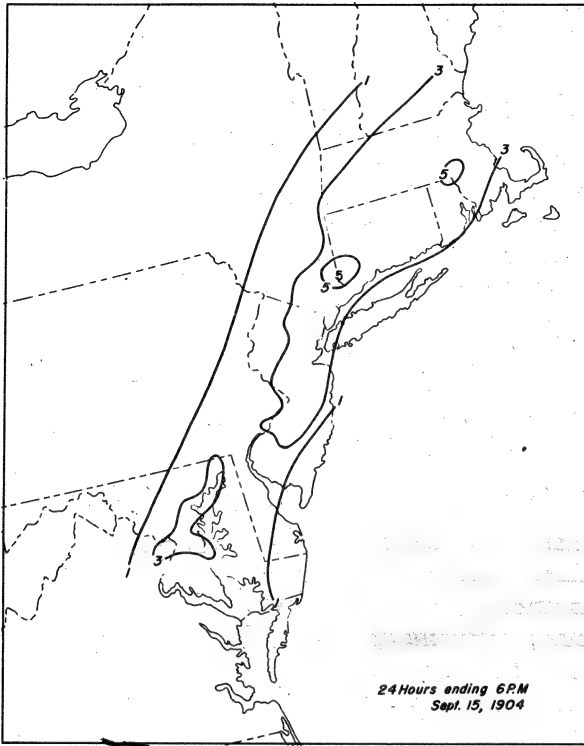
Area in Sq. Mi.

Duration of Rainfall in Hours

	6	12	18	24	30	36	48	60
Max. Station	6.6	9.4	9.8	10.0	10.0	10.0	10.0	10.0
10	6.3	9.2	9.7	9.8	9.8	9.8	9.8	9.8
100	5.3	8.2	8.5	8.7	8.7	8.7	8.7	8.8
200	4.4	7.3	8.0	8.2	8.2	8.2	8.3	8.4
500	3.1	5.8	7.2	7.4	7.4	7.4	7.6	7.8
1,000	2.5	4.9	6.5	6.7	6.7	6.7	6.8	7.1
2,000	2.2	4.3	5.9	6.1	6.1	6.1	6.2	6.4
5,000	2.0	3.7	5.2	5.4	5.4	5.4	5.4	5.5
10,000	1.9	3.3	4.7	4.9	4.9	4.9	4.9	5.0
20,000	1.7	3.0	4.2	4.5	4.5	4.5	4.5	4.6
35,000	1.6	2.7	3.9	4.2	4.2	4.2	4.2	4.3

*Storm Rainfall in the U. S., NA 1-9, C. of E., U. S. Army

**See page 222, South Atlantic Section



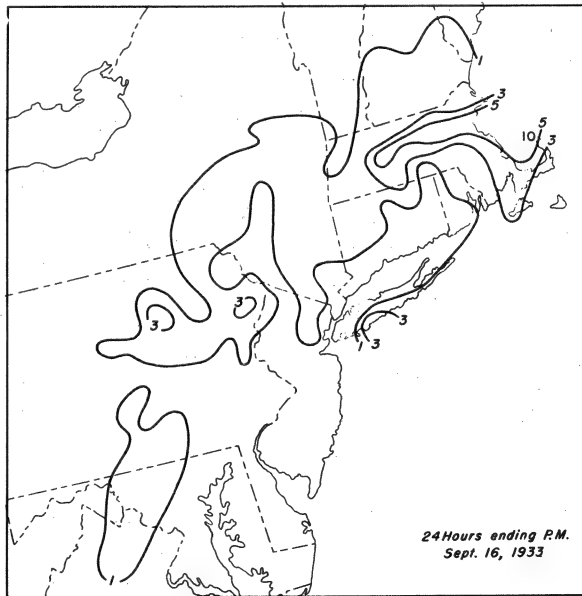
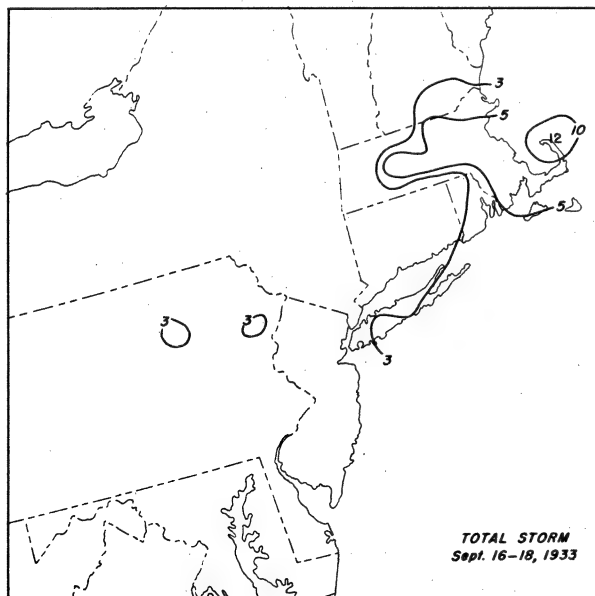
STORM OF SEPTEMBER 16-18, 1933

Meteorological Summary

The tropical disturbance that produced the heavy rains of this storm was first noted on September 8 east of the Lesser Antilles and by the 14th was a well organized storm of moderate intensity located about 400 miles east of Jacksonville. Showers fell about the perimeter of the storm, while rain of light-to-moderate intensity fell from Washington northward into southern New York and New England ahead of an east-west front. By the 15th, the hurricane, about 150 miles south of Hatteras, had pressed closer to the front which was now moving southward as a cold front. The extreme eastern portion of North Carolina* received moderate-to-heavy rains in advance of the hurricane, while light-to-moderate rain continued to fall north of Washington.

By morning of the 16th, rain diminished in the Carolinas, but the entire coastal area from Virginia northward was under the direct influence of the hurricane, with general rain falling ahead of it. The front lost its identity in the hurricane circulation. Final bursts of moderate-to-heavy rain occurred in coastal New England on the 16th and 17th as the storm accelerated north-northeastward, moving out of the zone of interest on the 18th without entering the New England coast.

Maximum Total-Storm Amount
Provincetown, Mass.: 12.3 in.



*See page 189, South Atlantic Section

STORM OF SEPTEMBER 7-12, 1954 (Edna)

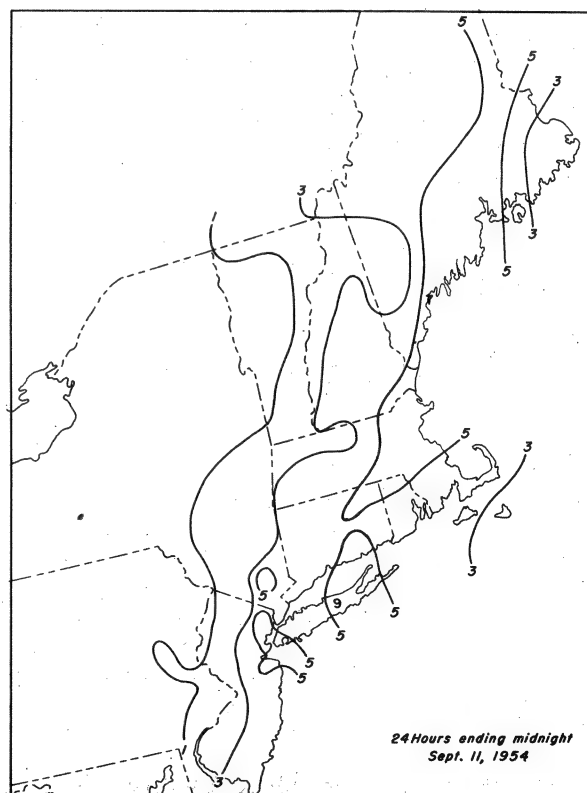
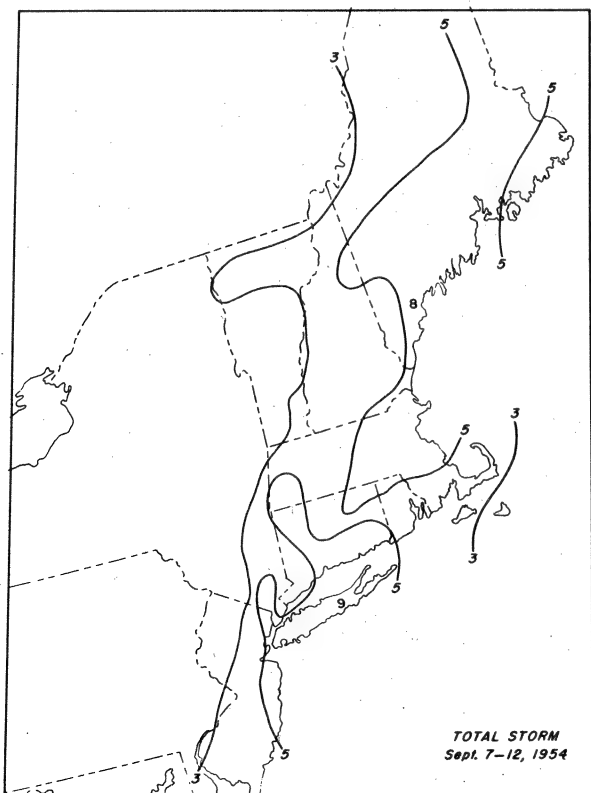
Meteorological Summary

The severe hurricane that entered the New England coast near Martha's Vineyard, Mass., shortly after 1 p.m. on September 11 was first observed north of Haiti at about 21.2 N and 68.5 W on September 5. It moved slowly northwestward until the 9th when it curved to the north-northeast and accelerated passing east of the North Carolina coast on the 10th. It continued in the same direction and entered into an eastward-moving low-pressure trough near Martha's Vineyard on the 11th. The hurricane moved along this trough, passing over Cape Cod and then close to Eastport, Me., into New Brunswick shortly after 7:30 p.m. on the 11th.

Rain occurred in two distinct periods in New England from August 7 to the 12th. The first, a period of light rains, occurred in conjunction with a weak frontal zone that extended east-west across southern New England from the 7th to the 9th. The second, a period of heavy rains, occurred as the hurricane moved through the New England area on August 11.

The effect of the extratropical trough may be noted in this storm by two features: (1) Rainfall was heaviest to the left of the center. (2) Clearing was rapid as the cooler air to the rear of the trough spread rapidly over the region as the hurricane moved through.

Maximum Total-Storm Amount
Upton, Long Island, N.Y.: 9.3 in.



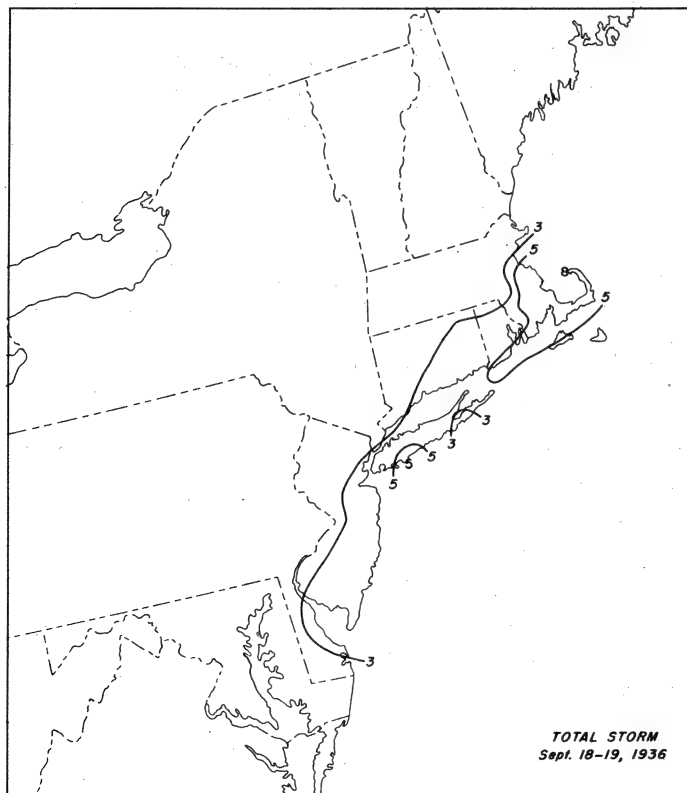
STORM OF SEPTEMBER 18-19, 1936

Meteorological Summary

The hurricane that passed east of Cape Hatteras, N.C., on September 18 and then just east of Nantucket, Mass., on the afternoon of the 19th was first observed east of the Lesser Antilles on September 8. It moved northwestward across the Atlantic toward the Carolina coast until the 18th, when it curved sharply to the northeast just off the Carolina coast and accelerated in its forward movement as it entered an eastward-moving extratropical trough and passed to the east of Nantucket, Mass., on the 19th.

Rainfall was moderate to heavy along the coast of New England and began well in advance of the tropical disturbance on the afternoon of September 18 as the effects of the warm tropical air and the extratropical trough were realized in that area. The second lighter burst occurred as the tropical disturbance passed just to the south of the New England coast.

Maximum Total-Storm Amount
Provincetown, Mass.: 7.8 in.



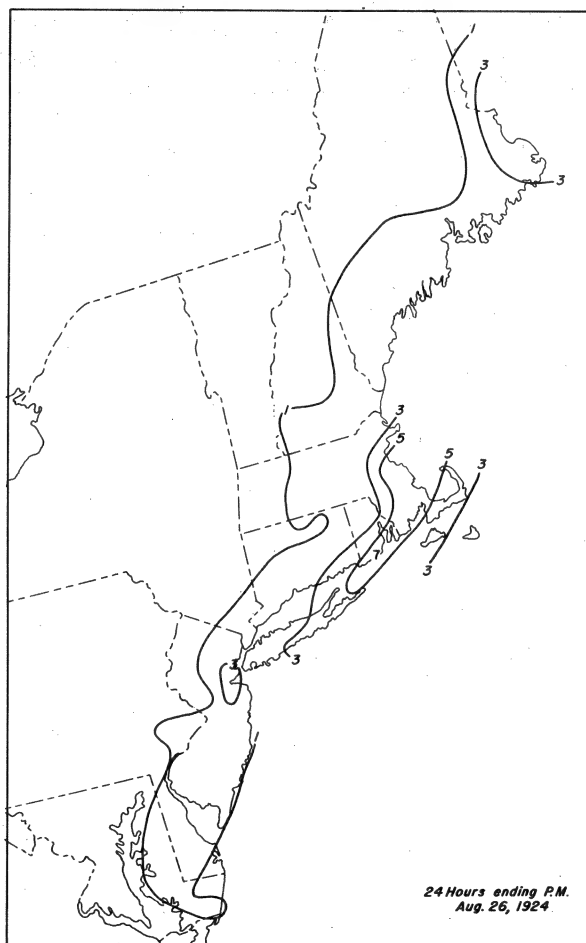
*See page 247, South Atlantic Section

STORM OF AUGUST 25-27, 1924

Meteorological Summary

A broad area of low pressure first noted in the central Caribbean on August 18 consolidated and moved slowly north-northwestward against an extensive ridge of high pressure. Morning of the 21st found it about 350 miles east of central Florida. It remained off eastern Florida until evening of the 24th, when it moved northward again. By morning of the 25th it was located east of Savannah, an intense storm, moving north-northeastward more rapidly. It was located about 150 miles south of Long Island on the morning of the 26th with the remnants of a weak front incorporated into its northeastern quadrant. Developing extratropical characteristics, the entire system moved rapidly northeastward out of the area without entering the mainland. Rainfall in the area of interest was heaviest on the 26th in advance of the storm in its forward right quadrant, tapering off and ending by afternoon of the 27th as the disturbance curved out to sea.

Maximum Total-Storm Amount
Kingston, R.I.: 6.9 in.



*See page 241, South Atlantic Section

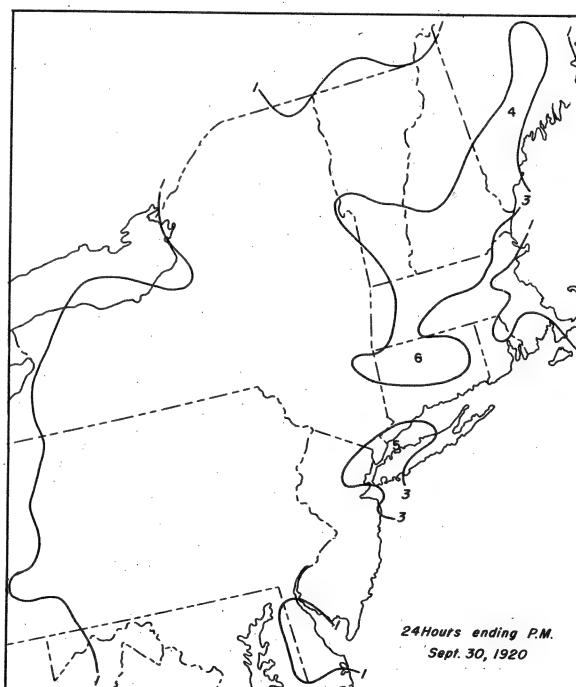
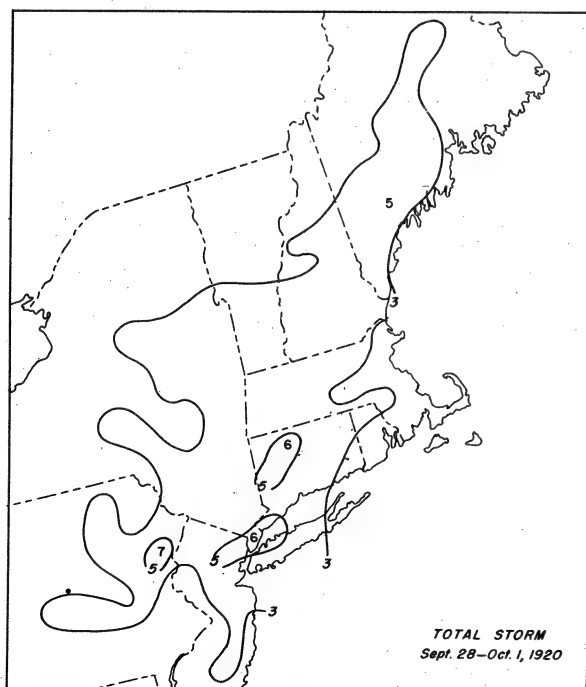
STORM OF SEPTEMBER 28-OCTOBER 1, 1920

Meteorological Summary

The disturbance that entered the Connecticut coast near New Haven during the night of September 30-October 1 was first observed over the eastern Gulf of Mexico on September 25. Its northward motion was retarded by a large high-pressure system which was centered over the Middle Atlantic States until September 28 when it moved out into the Atlantic Ocean. The tropical disturbance then curved sharply northeastward and entered the western Florida coast during the night of September 29. After reaching the mainland, the disturbance moved due east and came under the influence of an eastward-moving cold front off the Florida coast on the morning of September 30. The disturbance took on extratropical characteristics as it moved rapidly along the frontal zone as a wave and re-entered the mainland near Wilmington, N. C., during the afternoon of September 30. Moving north-northeastward, it traversed New England, reaching eastern Canada by morning of October 1.

Rainfall was heavy ahead and to the right of the disturbance as it crossed the Florida coast on the night of September 29-30.* Rains of light-to-moderate intensity spread northward along the coast as far as the Carolinas. A secondary rainfall maximum occurred to the right of the disturbance as it moved into the North Carolina coast near Wilmington on the 30th. Rainfall diminished in intensity after the disturbance crossed eastern North Carolina and moved into the Atlantic, but increased again to moderate to heavy in the forward quadrants of the disturbance during the evening and night of September 30-October 1 as it approached and entered the Connecticut coast.

Maximum Total-Storm Amount
Mt. Pocono, Pa.: 6.7 in.



* See page 224, South Atlantic Section

STORM OF OCTOBER 22-26, 1923

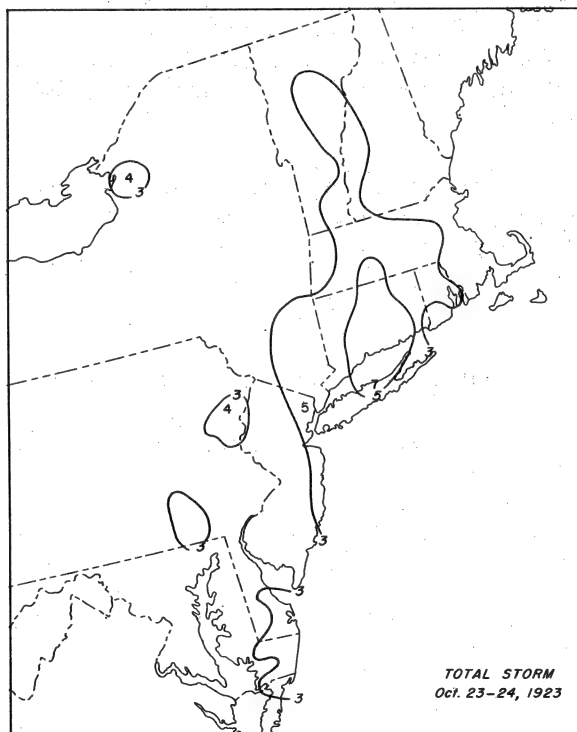
Meteorological Summary

The hurricane that went inland over Chesapeake Bay on October 23 was first observed over the Bahamas on the 22nd. The disturbance moved rapidly northward, skirting Cape Hatteras, N. C., and then, following a north-northwestward course across Chesapeake Bay, moved inland to northeastern Pennsylvania by the 24th.

Rainfall was moderate to the right of the disturbance as it moved inland on October 23. The heaviest rain for the period (October 23-24) fell over New Jersey, New York, and southern New England in the warm, moist, tropical air to the east of the path of the disturbance.

Maximum Total-Storm Amount

Setauket, N. Y.: 6.7 in.



STORM OF AUGUST 25 TO SEPTEMBER 1, 1954 (Carol)

Meteorological Summary

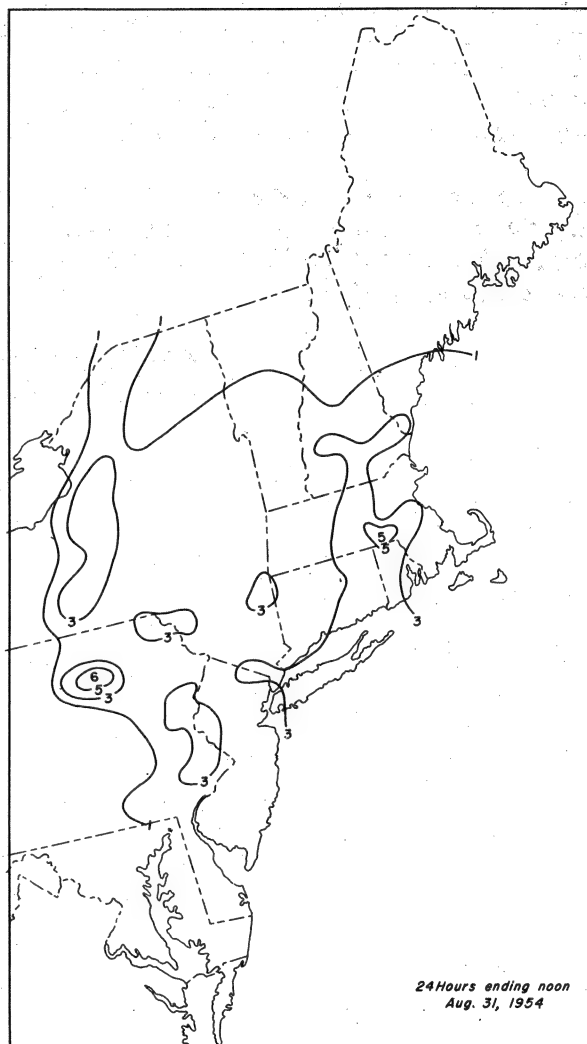
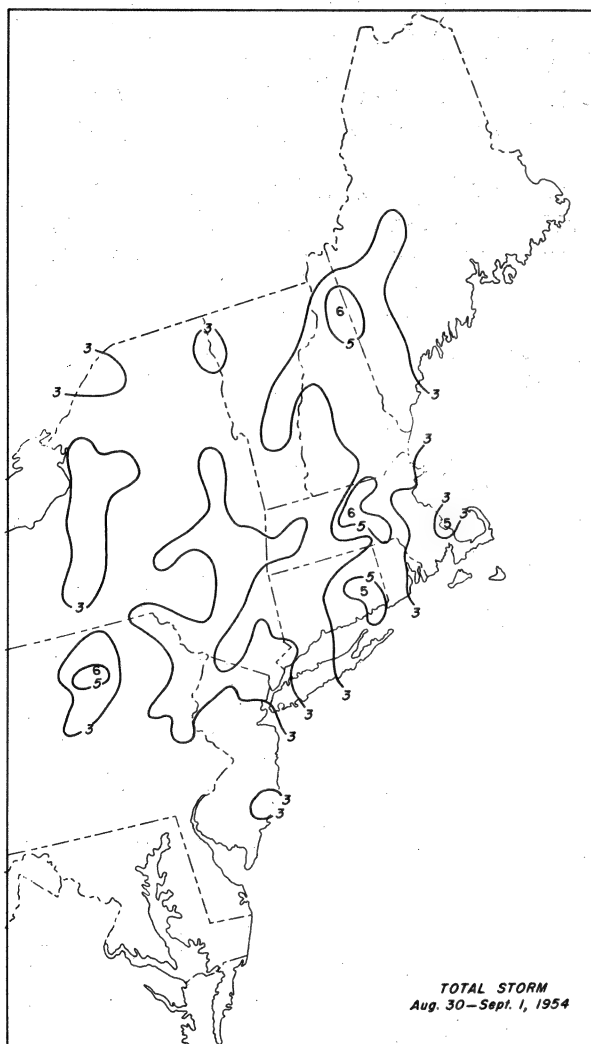
The severe hurricane that entered the New England coast at the mouth of the Connecticut River about 10:30 a.m. on August 31 was first observed east of the Bahama Islands at about 26.2N and 74.0W on August 25. It moved slowly westward then north-northwestward until the 30th when it was about 400 miles east of Charleston, S. C. At this point it accelerated and moved to the north-northeast grazing the North Carolina coast during the evening of the 30th and continued north-northeastward, passing over extreme eastern Long Island and passing inland over eastern Connecticut. The hurricane continued rapidly northward and finally dissipated over the rugged terrain of central and northern New Hampshire during the night of the 31st.

Rainfall was heavy immediately ahead and to the right of the hurricane as it passed inland over southern New England, with the amounts diminishing rapidly as the disturbance moved northward and dissipated over New Hampshire. During this same 24-hour period, a maximum center occurred in the mountainous regions of central Pennsylvania and central New York due to orographic lifting of the moist tropical air. Some moderate to heavy rainfall amounts occurred along the eastern fringe of the North Carolina coast on the evening and night of August 30 with Hatteras, N. C., reporting over 6 in. of rain during that afternoon and night. Since the rainfall in North Carolina was limited to such a small area, only the New England isohyetal maps are included here.

Individual rainfall amounts actually occurred within 24-hour periods as can be seen by comparing the isohyetal map of August 31 with the total-storm map of August 30 to September 1.

Maximum Total-Storm Amount

Eagles Mere, Pennsylvania: 6.2 in.



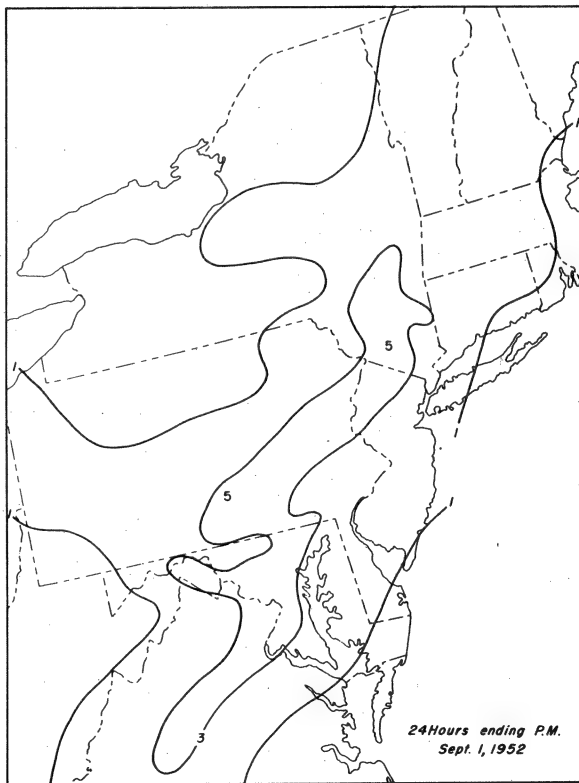
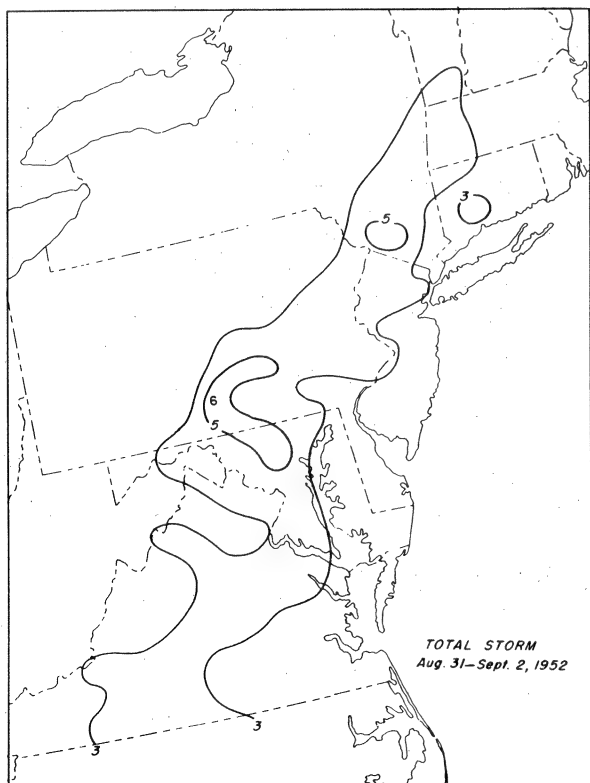
STORM OF AUGUST 25-SEPTEMBER 2, 1952 (Able)*

Meteorological Summary

The tropical disturbance that was centered northwest of Portland, Me., on the morning of September 2 was first noted on the 25th as a slowly developing easterly wave about 600 miles east of Puerto Rico. The disturbance moved northwestward until the 30th when the circulation of the storm became established. The disturbance then turned sharply from its northwesterly course and moved northward parallel to the Georgia coast, reaching the South Carolina coast during the night of the 30th. After crossing the coast the hurricane moved north-northeastward, reaching the southwestern part of the District of Columbia at 3 a.m. of September 1. By morning of the 2nd, the disturbance was centered northwest of Portland, Me., and dissipated shortly thereafter.

Rainfall was moderate to heavy along the path of the disturbance spreading from the Carolinas on August 31 to southeastern New York on September 1. Rainfall amounts diminished rapidly after the disturbance passed through the New England States.

Maximum Total-Storm Amount
Chambersburg, Pa.: 6.2 in.



* See page 243, South Atlantic Section

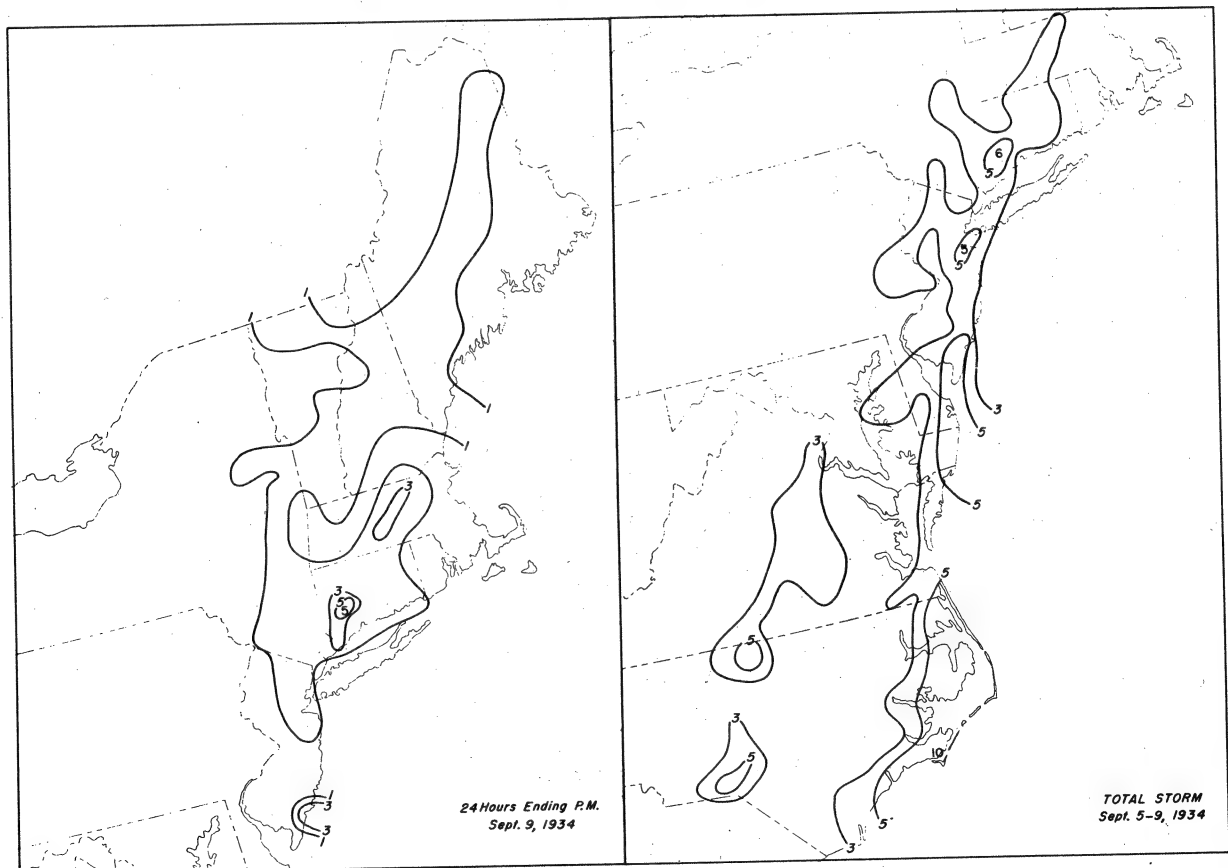
STORM OF SEPTEMBER 5-9, 1934

Meteorological Summary

The tropical disturbance that passed over Long Island, N.Y., into western Connecticut during the night of September 8, was first noted north of the Windward Islands on September 5. It moved eastward until September 7, when it consolidated with a weak quasi-stationary front that had moved out of a rather deep upper trough west of the Appalachians. The tropical disturbance then curved north-northeastward passing just east of Cape Hatteras. It then recurved northward, passing inland over Long Island and western Connecticut on the night of September 8.

Rainfall from this disturbance occurred in three distinct bursts from the Carolinas northward into New England. Moderate showers were evident in the Carolinas and Virginia during the day and night of September 7 as the warm moist air from the tropical disturbance was lifted over a quasi-stationary front.* A second lighter burst occurred early on September 8 along the Carolina and Virginia coast as the disturbance moved northward towards New England. The third and final burst occurred directly ahead and to the right of the center as it crossed the New England coast.

Maximum Total-Storm Amount
Waterbury, Conn.: 5.6 in.



*See page 148, South Atlantic Section

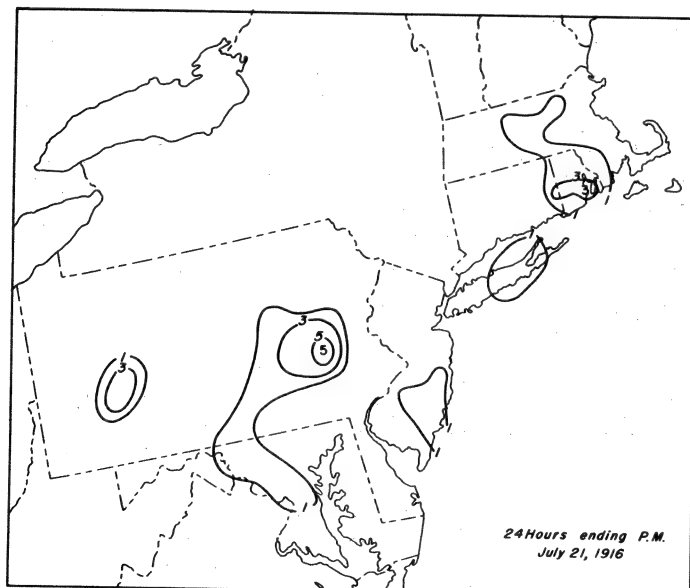
STORM OF JULY 20-22, 1916

Meteorological Summary

The tropical disturbance which produced the storm of July 20-22 formed over the southwestern Atlantic and passed over Puerto Rico on July 13. It filled and then deepened again, moving slowly in a northwesterly direction until July 17, when it accelerated. The center of the Atlantic subtropical High was in the extreme eastern Atlantic and its western edge had been weakened by a tropical storm that passed inland over South Carolina on July 14.* The tropical storm continued to moved northwestward skirting the Atlantic Coast off Cape Hatteras and curving northeastward. The disturbance abruptly changed direction at this point from northeast to north, striking the New England coast on July 21 when it consolidated with a rapidly-moving cold front from the west.

Rainfall in advance of the tropical disturbance was negligible along the East Coast until July 21, when moderate-to-heavy showers occurred in eastern Pennsylvania and southern New England in advance of, and associated with, the tropical disturbance. By the 22nd, rain had ended in most areas with the exception of instability showers in the mountain areas of eastern New York and New England.

Maximum Total-Storm Amount
Reading, Pa.: 5.3 in.



*See page 112, South Atlantic Section

STORM OF SEPTEMBER 13-16, 1903

Meteorological Summary

The tropical hurricane that entered the New Jersey coast on September 16 was first observed on September 13 just south of Bermuda. It moved westward following the flow around the Bermuda High to a position 400 miles east of Charleston, S. C., on the 15th. It then curved sharply to the north-northeast and skirted the East Coast until it was just east of New Jersey on September 16. From this point the disturbance crossed the New Jersey coast and moved rapidly northwestward joining with an eastward-moving cold front in the Great Lakes region.

Rainfall was negligible over the North Atlantic States, with no station reporting over 3 inches of rain in 24 hours. The major rainfall area was in the Great Lakes region after the tropical disturbance moved westward and consolidated with the cold front in that area.

STORM OF SEPTEMBER 13-16, 1912

Meteorological Summary

The tropical disturbance that moved through southern Pennsylvania and southern New England on September 15-16 was noted over the eastern Gulf of Mexico on the 9th. The disturbance moved slowly northwestward, crossed the Alabama coast west of Mobile, and began to curve toward the northeast on the 14th. Passing west of the Appalachians, the disturbance then curved eastward on the 15th, traversing southern Pennsylvania and southern New England before moving out into the Atlantic on the morning of the 16th.

Rainfall was moderate to heavy ahead and to the right of the disturbance as it moved inland on the night of September 13-14.* Amounts diminished but remained moderate throughout the course of the storm, with general showers occurring in all quadrants of the disturbance as it passed west of the Appalachians and through Pennsylvania and southern New England on the 15th and 16th. Rainfall amounts in the North Atlantic Region were generally below an inch with the following scattered maxima:

Spier Falls, N. Y.:	3.5 in. on September 15
Keene, N. H.:	2.4 in. on September 16

*See page 75, Gulf of Mexico Section

STORM OF OCTOBER 19, 1923

Meteorological Summary

The weak tropical disturbance that entered the mainland near Boston, Mass., on October 19 formed northeast of Puerto Rico on the 14th. The disturbance moved northeastward and then curved to the northwest at about latitude 30° N, passing to the interior near Boston on the 19th.

Rainfall was exceptionally light for this period, with maximum 24-hour rainfall amounts under 1 inch over New England. The two exceptions were as follows: Plymouth, Mass., 1.7 inches, and Cornish, Me., 1.5 inches, all falling on the 19th as the weak disturbance entered the New England coast.

STORM OF OCTOBER 1-4, 1927*

Meteorological Summary

The weak tropical disturbance that had entered the coast between Savannah, Ga., and Charleston, S. C., on October 3 moved up along the Piedmont sections of the Carolinas and Virginia, crossed southeastern Pennsylvania and northern New Jersey, and passed out to sea through the Cape Cod area on the morning of the 4th.

Rainfall was light to moderate occurring along the path of the disturbance as it passed through the North Atlantic States with the following 24-hour amounts:

Hudson, N. Y.:	3.0 in. on October 4
Charlotteburg, N. J.:	2.2 in. on October 4
Bloomfield, Vt.:	2.8 in. on October 4

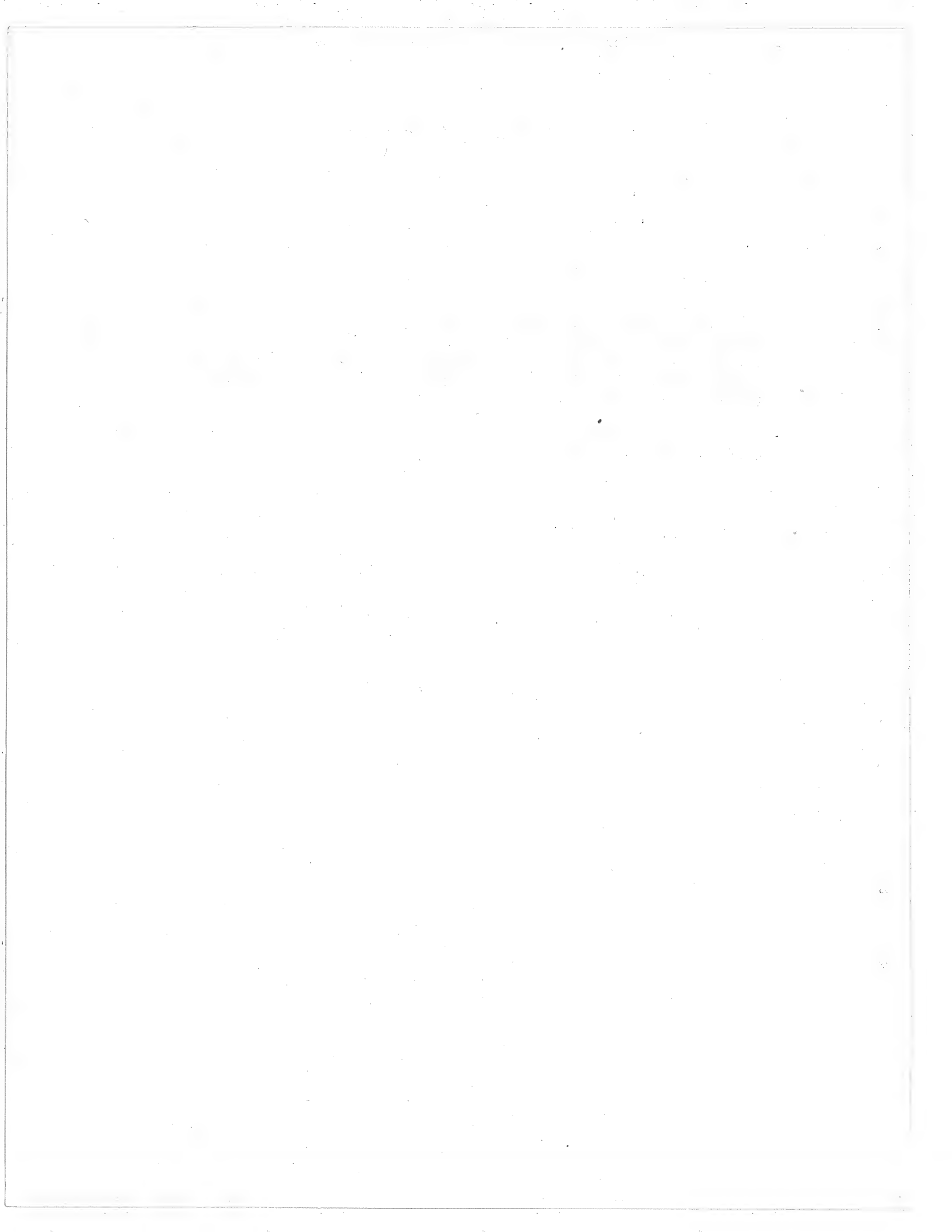
*See page 244, South Atlantic Section

STORM OF SEPTEMBER 12, 1950

Meteorological Summary

This tropical disturbance, which passed about 85 miles east of Nantucket, Mass., on the 12th had begun to develop extratropical characteristics at that time. Measurable precipitation was in the form of light-to-moderate showers occurring along the immediate Cape Cod coast, not exceeding 3 inches in 24 hours at any station.

Further treatment of this storm may be found in the Monthly Weather Review of January 1951.



V. CHRONOLOGICAL STORM INDEX

CHRONOLOGICAL STORM INDEX

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1900</u>			
Sept. 5-7	Hypoluxo, Fla.	6	248
Sept. 8-10	Brazoria, Tex.	10	72
Sept. 13-14	Healing Springs, Ala.	8	92
<u>1901</u>			
June 12-14	Miami, Fla.	13	186
July 5-10	Hondo City, Tex.	7	94
July 10-14	Sudlersville, Md.	6	250
Aug. 10-12	South Atlantic Section		254
Aug. 13-17	Daphne, Ala., and Jasper, Fla.	12	60
Sept. 16-19	Americus, Ga.	11	144
<u>1902</u>			
June 13-17	Pinemont, Fla.	9	218
Oct. 10-12	Gulf of Mexico Region		200
<u>1903</u>			
Sept. 11-16	Fort Meade, Fla.	15	168
Sept. 13-16	North Atlantic Region		293
Oct. 7-11	Patterson, N. J.	16	272
<u>1904</u>			
Sept. 12-15	Smiths Mills, S. C.	9	222
Sept. 12-15	Friesburg, N. J.	10	280
Oct. 17-20	Jupiter, Fla.	17	162
Nov. 3-5	South Atlantic		254
<u>1905</u>			
Sept. 27-30	Venice, La.	8	89
Oct. 9-10	Spring Hill, Ala.	7	96
<u>1906</u>			
June 12	Lucy, Ala.	8	227
June 16-17	Jupiter, Ala.	6	245
Sept. 17-18	Horse Cove, N. C.	8	229
Sept. 25-28	Molino, Fla.	14	52
Oct. 18-21	Skyland, Va.	10	217

CHRONOLOGICAL STORM INDEX (Cont.)

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1907</u>			
Sept. 21-22	Gulf of Mexico		102
Sept. 28-29	Wausau, Fla.	8	230
<u>1908</u>			
July 26-Aug. 2	Franklin, La.	20	26
July 28-31	New Bern, N. C.	10	146
Oct. 8-10	Hatteras, N. C.	6	249
Oct. 22-23	Banner Elk, N. C.	7	236
<u>1909</u>			
June 27-30	Tarpon Springs, Fla.	12	195
June 28-30	Llano Grande, Tex.	6	99
July 21-23	Hallettsville, Tex.	9	86
Aug. 27-28	Falfurrias, Tex.	8	91
Sept. 19-22	St. Francisville, La.	14	36
Oct. 11-12	Miami, Fla.	9	221
<u>1910</u>			
Oct. 14-20	Hypoluxo, Fla.	22	159
<u>1911</u>			
Aug. 9-14	Molino, Fla.	10	81
Aug. 28-31	St. George, Fla.	19	122
<u>1912</u>			
June 7-15	Franklin, La.	7	93
July 12-18	St. Mary's, Ga.	7	238
Sept. 13-16	Newbern, Ala.	10	75
Sept. 13-16	North Atlantic		293
Oct. 16-18	Brownsville, Tex.	6	98
<u>1913</u>			
June 22-30	Montell, Tex.	21	44
Aug. 29-Sept. 5	Durham, N. C.	6	251
Oct. 18-20	South Atlantic		255
Oct. 7-12	Wilmington, N. C.	7	237
<u>1914</u>			
Sept. 15-19	South Atlantic		255
<u>1915</u>			
Aug. 1-3	St. Petersburg, Fla.	17	130
Aug. 16-21	San Augustine, Tex.	20	24
Sept. 4-5	Dadeville, Ala.	6	101
Sept. 28-30	Franklinton, La.	14	34

CHRONOLOGICAL STORM INDEX (Cont.)

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1916</u>			
July 5-10	Bonifay, Fla.	25	12
July 13-17	Altapass, N. C.	24	112
July 20-22	Reading, Pa.	5	292
Aug. 18-19	Harlingen, Tex.	6	100
Aug. 21-25	Miami, Fla.	6	242
Sept. 4-6	South Atlantic		256
Sept. 11-14	South Atlantic		256
Oct. 4-5	South Atlantic		257
Oct. 17-18	Burrwood, Ia.	13	56
<u>1917</u>			
Sept. 28-29	Evergreen, Ala.	9	226
<u>1918</u>			
Aug. 4-6	Gulf of Mexico		103
Oct. 14-18	Gulf of Mexico		103
<u>1919</u>			
July 4-5	South Atlantic		257
Sept. 14-15	George West, Tex.	12	38
<u>1920</u>			
Sept. 16-23	Robertsdale, Ala.	12	63
Sept. 22-24	South Atlantic		258
Sept. 28-Oct. 1	Lake City, Fla.	9	224
Sept. 28-Oct. 1	Mt. Pocono, Pa.	7	286
<u>1921</u>			
June 22-23	Matagorda, Tex.	10	73
Sept. 8-10	Thrall, Tex.	40	4
Oct. 20-27	St. Leo, Fla.	14	176
<u>1922</u>			
June 16-17	Gulf of Mexico		104
Oct. 26-30	Gulf of Mexico		104
<u>1923</u>			
Oct. 16-19	Cottage Hill, Fla.	12	62
Oct. 19	North Atlantic		294
Oct. 22-26	Setauket, N. Y.	7	287
<u>1924</u>			
Aug. 16-27	Brewers, N. C.	7	241
Aug. 25-27	Kingston, R. I.	7	285
Sept. 14-17	Beaufort, N. C.	15	132
Sept. 27-30	Quitman, Ga.	12	192
Oct. 20-21	Ft. Myers, Fla.	12	190

CHRONOLOGICAL STORM INDEX (Cont.)

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1925</u>			
Sept. 6-7	Brownsville, Tex.	11	70
Nov. 29-Dec. 3	Miami, Fla.	16	166
<u>1926</u>			
July 27-31	Merritts Island, Fla.	10	210
Aug. 23-26	Donaldsonville, La.	15	32
Sept. 17-21	Bay Minette, Ala.	19	126
Oct. 19-21	Long Key, Fla.	13	185
<u>1927</u>			
Oct. 1-4	North Atlantic		294
Oct. 1-4	Chatham, Va.	6	244
<u>1928</u>			
Aug. 7-12	St. Cloud, Fla.	15	134
Aug. 13-17	Caesar's Head, S. C.	13	140
Sept. 16-19	Darlington, S. C.	13	142
<u>1929</u>			
June 28-29	Gulf of Mexico		105
Sept. 23-Oct. 3	Glenville, Ga.	20	114
Oct. 20-21	Long Key, Fla.	5	252
<u>1930</u>			
Sept. 8-14	Tallapoosa, Ga.	8	228
<u>1931</u>			
June 27-28	Runo, Tex.	13	57
July 15-17	Seven Hill, Ala.	16	50
Sept. 7-8	Hypoluxo, Fla.	8	235
<u>1932</u>			
Aug. 12-15	Angleton, Tex.	10	80
Aug. 25-Sept. 3	Miami, Fla.	10	213
Aug. 25-Sept. 3	Mobile, Ala.	9	84
Sept. 14-15	Carrabelle, Fla.	11	205
Sept. 16-17	Westerly, R. I.	12	276
Sept. 17-20	Carrabelle, Fla.	8	87
Oct. 14-18	Tuscaloosa, Ala.	9	40
Oct. 15-18	Rockhouse, N. C.	9	153
<u>1933</u>			
July 22-27	Logansport, La.	21	18
July 30-Aug. 1	West Palm Beach, Fla.	16	165
Aug. 4-5	Gulf of Mexico		105
Aug. 18-19	Fort Lauderdale, Fla.	9	220

CHRONOLOGICAL STORM INDEX (Cont.)

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1933</u>			
Aug. 20-24	Bridgeville, Del.	13	184
Aug. 20-24	Peekamoose, N. Y.	16	270
Sept. 4-8	Clermont, Fla.	18	160
Sept. 4-6	Mercedes, Tex.	15	51
Sept. 16-18	Provincetown, Mass.	12	282
Sept. 16-18	Cape Hatteras	13	189
<u>1934</u>			
June 12-17	Lafayette, La.	10	78
Sept. 5-9	Beaufort, N. C.	10	148
Sept. 5-9	Waterbury, Conn.	6	291
Oct. 5-6	Pensacola, Fla.	15	167
<u>1935</u>			
Aug. 31-Sept. 6	Easton, Md.	16	128
Sept. 23-Oct. 2	South Atlantic		258
Oct. 30-Nov. 8	Long Key, Fla.	12	194
<u>1936</u>			
June 27-July 4	Bebe, Tex.	21	20
July 29-Aug. 2	Blountstown, Fla.	10	150
Aug. 20-23	South Atlantic		259
Sept. 18-19	Millsboro, Del.	6	247
Sept. 18-19	Provincetown, Mass.	8	284
Sept. 14-18	Broome and Roosevelt, Tex.	30	8
<u>1937</u>			
Aug. 28-Sept. 2	Vernon, Fla.	14	174
Sept. 19-21	Carrabelle, Fla.	13	188
Oct. 2-4	Belle Chasse, La.	16	48
<u>1938</u>			
Aug. 12-15	Koll, La.	15	30
Aug. 27-29	Sarita, Tex.	7	97
Sept. 16-21	Belhaven, N. C.	14	138
Sept. 17-22	Buck, Conn.	17	268
Oct. 16-18	Gulf of Mexico		106
<u>1939</u>			
June 16-17	Gulf of Mexico		107
Aug. 11-20	De Funiak Springs, Fla.	21	156
Aug. 19	Manahawkin, N. J.	18	266
Sept. 24-27	Brewton, Ala.	11	66

CHRONOLOGICAL STORM INDEX (Cont.)

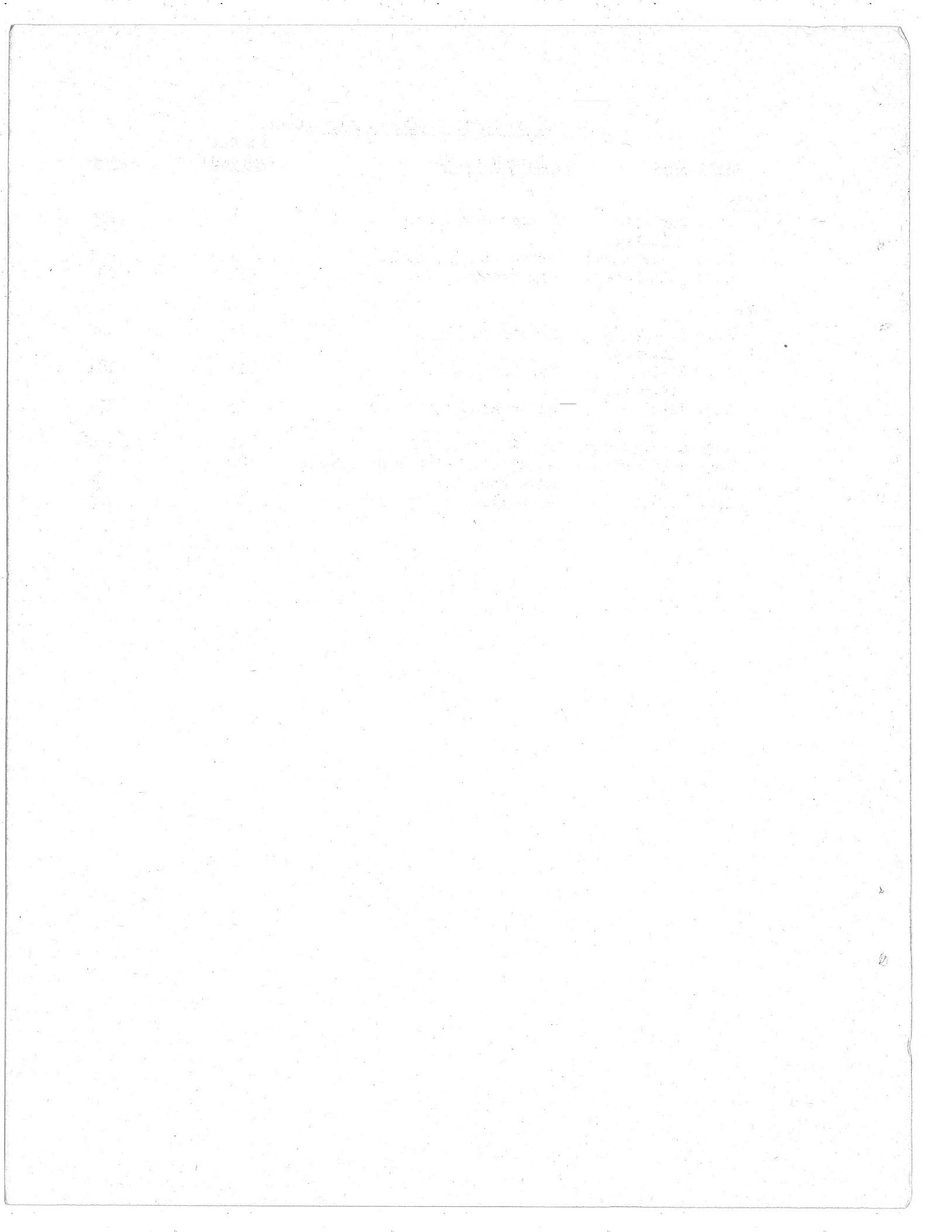
<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1940</u>			
Aug. 6-9	Miller Island, La.	38	6
Aug. 10-17	Swansboro, N. C.	20	118
Aug. 31-Sept. 1	Ewan, N. J.	24	262
Sept. 23-24	Ville Platte, La.	10	74
<u>1941</u>			
Sept. 11-15	Karnes City, Tex.	10	71
Sept. 18-26	Conroe, Tex.	7	95
Oct. 6-8	Albany, Ga.	7	240
Oct. 17-22	Trenton, Fla.	35	110
<u>1942</u>			
Aug. 18-23	Springbank, Ark.	10	76
Aug. 28-30	Woodsboro, Tex.	9	83
Oct. 11-17	Big Meadows, Va.	19	124
<u>1943</u>			
July 27-29	Devers, Tex.	23	16
Sept. 16-20	Morgan City, La.	19	46
Sept. 28-Oct. 1	Diamond Springs, Va.	5	253
<u>1944</u>			
July 30-Aug. 4	Cheltenham, Md.	8	234
Sept. 8-11	Andalusia, Ala.	11	67
Sept. 12-15	New Brunswick, N. J.	12	278
Oct. 13-21	Brunswick Airport, Ga.	11	196
<u>1945</u>			
June 20-27	Lake Alfred, Fla.	14	177
July 19-21	Gulf of Mexico		107
Aug. 26-29	Hockley (near), Tex.	20	28
Sept. 3-6	Hypoluxo, Fla.	6	246
Sept. 11-18	Laurensburg, N. C.	11	198
<u>1946</u>			
June 14-16	Gulf of Mexico		108
July 5-10	Manteo, N. C.	8	231
Oct. 6-10	Mt. Mitchell, N. C.	8	233
Oct. 31-Nov. 2	Naples, Fla.	8	232
<u>1947</u>			
July 31-Aug. 2	Raymondville, Tex.	8	90
Aug. 18-27	College Station, Tex.	12	58
Aug. 21-22	Gulf of Mexico		108
Sept. 7-8	Pensacola Airport, Fla.	9	223
Sept. 10-19	St. Lucie Lock No. 2, Fla.	10	216

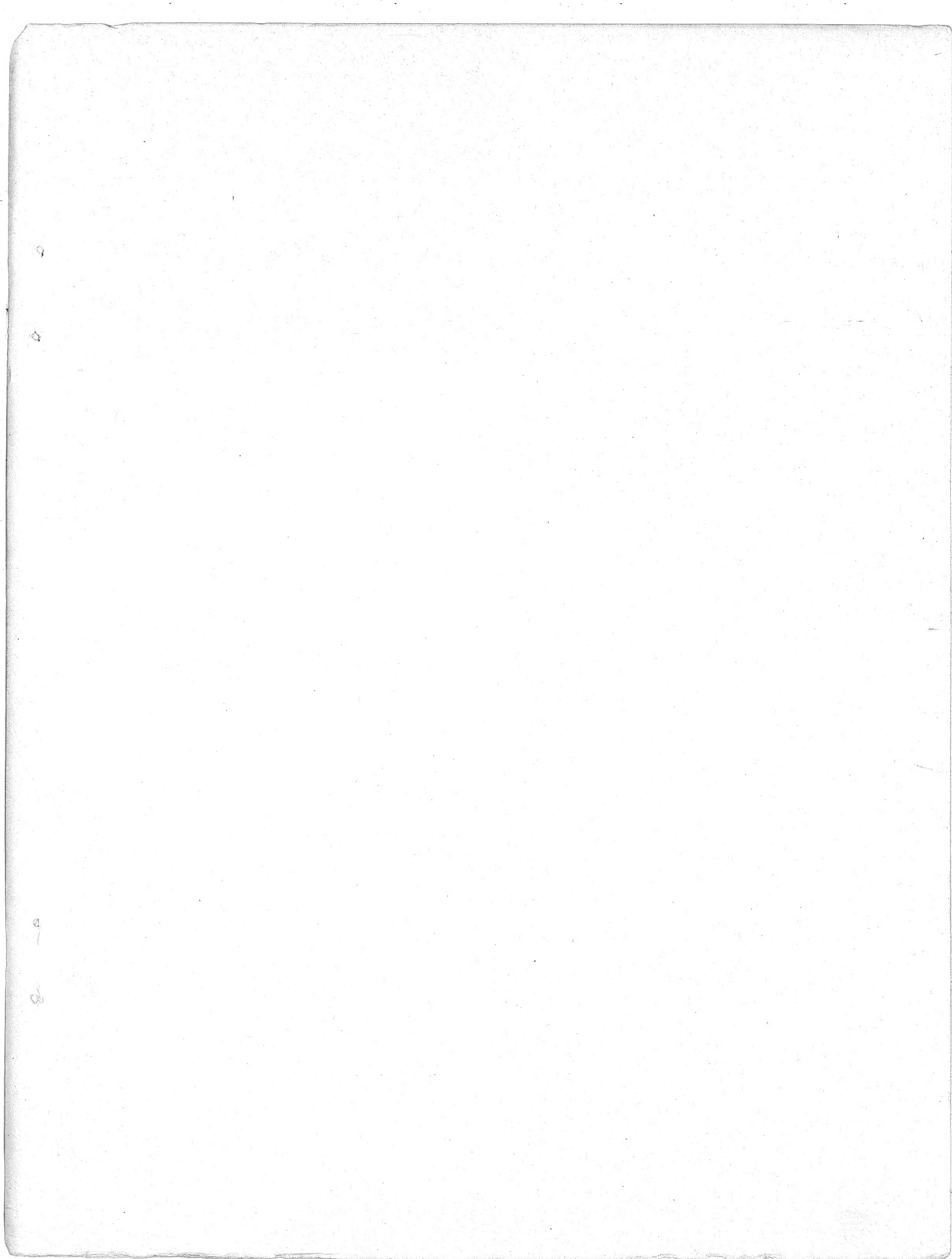
CHRONOLOGICAL STORM INDEX (Cont.)

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1947</u>			
Sept. 18-21	Bay St. Louis, Miss.	9	85
Sept. 20-25	Hilliard, Fla.	11	206
Oct. 6-8	Fernandina, Fla.	7	239
Oct. 11-17	Pompano Beach, Fla.	14	170
<u>1948</u>			
May 11-14	South Atlantic		259
July 9-12	Fort Gaines, Ga.	13	180
Sept. 3-6	Grand Isle, La.	8	88
Sept. 18-25	Miami, Fla.	11	208
Oct. 4-5	Boca Raton, Fla.	12	191
<u>1949</u>			
Aug. 23-29	St. Lucie Lock No. 1, Fla.	10	214
Sept. 4-6	McHenry, Miss.	12	59
Oct. 3-4	Beaumont, Tex.	11	64
<u>1950</u>			
Aug. 20-31(Baker)	De Funiak Springs, Fla.	11	209
Sept. 1-7(Easy)	Cedar Keys, Fla.	25	154
Sept. 12	North Atlantic		295
Oct. 15-19(King)	Titusville, Fla.	14	172
Oct. 18-21(Love)	South Atlantic		260
<u>1951</u>			
Oct. 1-7(How)	Bonita Springs, Fla.	16	164
<u>1952</u>			
Aug. 25-Sept. 2 (Able)	Fayetteville, N. C.	6	243
Aug. 25-Sept. 2	Chambersburg, Pa.	6	290
<u>1953</u>			
May 25-June 6 (Alice)	Lake Placid, Fla.	13	182
Aug. 11-15 (Barbara)	Onley, Va.	11	204
Sept. 23-26 (Florence)	Lockhart, Ala.	14	178
Oct. 8-10(Hazel)	Daytona Beach, Fla.	11	212
<u>1954</u>			
June 24-28(Alice)	Pandale, Tex.	27	42
July 28-31 (Barbara)	Franklin, La.	13	54

CHRONOLOGICAL STORM INDEX (Cont.)

<u>Storm Date</u>	<u>Maximum Center</u>	<u>Amount (Inches)</u>	<u>Page</u>
<u>1954</u>			
Aug. 25-Sept. 1 (Carol)	Eagles Mere, Pa.	6	288
Sept. 7-22 (Edna)	Upton, L. I., N. Y.	9	283
Oct. 5-16 (Hazel)	Big Meadows, Va.	11	202
<u>1955</u>			
July 31-Aug. 3 (Brenda)	Mansfield, La.	11	68
Aug. 11-15 (Connie)	New Bern, N. C.	13	181
Aug. 11-15 (Connie)	Slide Mtn., N. Y.	15	274
Aug. 17-20 (Diane)	Big Meadows, Va.	11	201
Aug. 17-20 (Diane)	Westfield Water Dept., Mass.	20	264
Aug. 23-29	Anderson, Tex.	10	82
Sept. 18-20 (Ione)	Maysville, N. C.	17	163





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